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HYPOPLASIA OF THORACIC AORTA CLINICALLY SIMULATING COARCTATION

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WITH the current interest in cardiac and vascular surgery, it is felt advisable to report what is believed to be an unusual abnormality in the aorta. A thorough review of the American literature fails to reveal a previously reported case similar to this. Clinically our patient presented most of the findings of coarctation, and thoracotomy proved him to have narrowing of the thoracic aorta beginning at a point just distal to the ligamentum arteriosum.

Case Report

R. L., a twenty-five-year-old, single, white man, was first seen at Ancker Hospital on January 25, 1948, after sustaining a nasal fracture. He had known that he had a "heart murmur" since the age of eighteen and had been told that he probably had coarctation of the aorta after one physician had used intravenous-medications to relieve a blood pressure of "about 190."

On April 28, 1949, he was admitted to the hospital at the request of one of us (J. F. B.) for operation, again with diagnostic findings of coarctation of the aorta. At that time he was relatively asymptomatic except for extreme palpitation and some exertional dyspnea and fatigue. He gave no history of orthopnea, cough, or ankle edema and had no urinary complaints. As a child he had been able to exercise and swim without appreciable difficulty.

His past history revealed that he had developed tuberculosis of the thoracic spine and left hip at the age of three. The spine and hip were immobilized until he was seven years of age using a Bradford frame and casts. At eighteen years of age his left hip was ankylosed. Other operations included a tonsillectomy and an appendectomy. He had the usual childhood diseases (measles,

mumps and chickenpox). Several years prior to admission he had pneumonia involving the left lung.

Physical examination revealed an asthenic, intelligent, young white man in no acute distress. His temperature was 98.7° F. and his pulse 60. A blood pressure recording in the right arm was 160/110 and in the left arm 162/94; in the right and left legs 110/90. There were scars over the left hip area from previous surgery and draining sinuses. There was a dorsal kyphoscoliosis with increased anteroposterior diameter of the chest (Fig. 1). Examination of the heart revealed cardiac enlargement with the apex at the sixth left intercostal space at the anterior axillary line. The rhythm was regular. There was a long harsh systolic murmur heard best in the left second interspace, and one observer (J. F. B.) heard a diastolic murmur over the base of the heart. Femoral pulsations were diminished in quality, but present. Popliteal, posterior tibial, and dorsalis pedis pulsations were not felt. Pulsations in the upper extremities were normal. The left hip joint was ankylosed and both legs were small in calibre and less muscular than normal.

Laboratory studies showed normal urinalyses with specific gravities between 1.010 and 1.025. The hemoglobin was 14.1 grams and red blood cell count 5.65 million. The white count was 7400 with 56 per cent polymorphonuclear cells, 39 per cent lymphocytes, 4 per cent monocytes and one per cent eosinophil. The erythrocyte sedimentation rate was 5 mm. in one hour. The blood urea nitrogen was 11.2 mg. per cent.

Chest fluoroscopy showed left ventricular cardiac enlargement and rib notching (Fig. 2). The aorta was not well visualized because of the marked spinal deformity consisting of acute angulation in the upper third of the dorsal spine. Films taken in this area showed destruction of several vertebral bodies, probably dorsal four, five, six, and seven. There was a minimal amount of calcification present and it was felt that the destructive process was probably due to tuberculosis.

The electrocardiogram showed sinus bradycardia and left axis deviation interpreted as probably being within normal limits. Renal flow studies preoperatively by Dr. John LaBree were also within normal limits.

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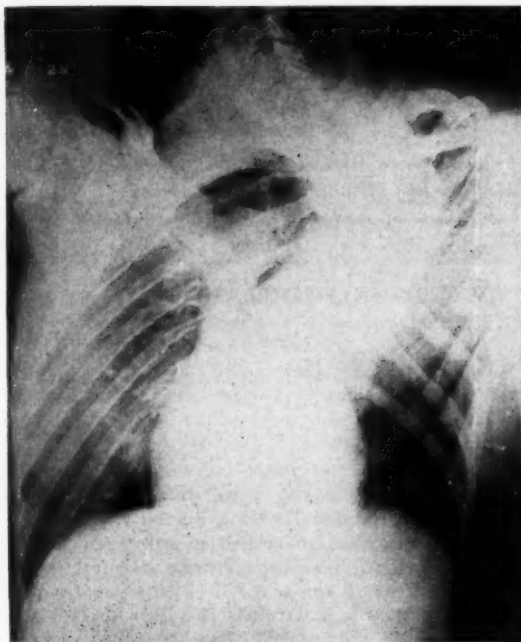


Fig. 1. Oblique x-ray chest showing the dorsal kyphoscoliosis.

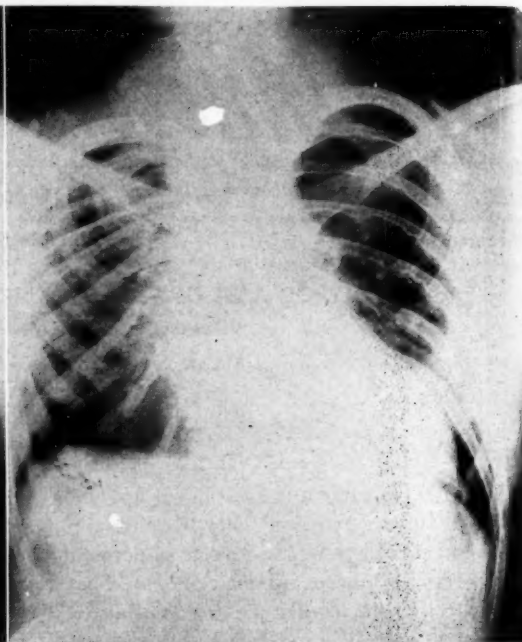


Fig. 2. Anteroposterior view of the chest showing left ventricular cardiac and rib notching.

On May 9, 1949, he was taken to the operating room but operation was postponed after the anesthesiologists were unable to introduce an endotracheal tube. Nine days later, on May 18, intubation was successful and an exploratory thoracotomy was performed under pentothal-curare-nitrous oxide anesthesia. The pleural cavity was entered through the left posterolateral aspect of the chest with excision of the sixth rib. The vessels around the scapula were markedly dilated. The left subclavian artery was found to be dilated to a diameter of 3 cm. The arch of the aorta also measured 3 cm. in diameter (circumference 9.42 cm.). After incising the mediastinal pleural covering the aorta, a narrowing was found in the aorta just distal to the ligamentum arteriosum and also to the point of most marked dorsal kyphosis. The aorta at this point measured only 1.5 cm. in diameter, and exposure of the thoracic aorta by dissection down to the diaphragm failed to reveal any change in its size. A good flow of blood was felt going through this portion of the aorta.

Because of the nature of the abnormality, further operation was deemed inadvisable. After introducing two rubber catheter drains into the pleural space, the chest wall was closed in layers with interrupted silk sutures.

His postoperative recovery was uneventful.

Discussion

Hypoplasia of the aorta was described first in 1761 by Morgagni, and by 1907, according to Ikeda,⁸ over 100 cases had been reported in the literature. Recently the reports have been more

sporadic and all have concerned themselves with narrowness of the entire aortic system or well-localized areas (coarctation). Burke,⁵ Apelt,² Ikeda,⁸ and Werley, Waite, and Kelsey¹³ give excellent descriptions of hypoplasia involving the entire aortic system.

Coarctation was first recognized, according to Abbott,⁷ in dissecting room specimen by Paris in 1791. In the past two decades the literature has contained numerous reports and reviews which need not be discussed here. The surgical treatment of this condition was introduced independently by Gross and Crafoord in 1945. Bahnson, Cooley and Sloan³ reported two cases of coarctation below the ductus arteriosus and added ten from the literature. Parker and Dry¹¹ reported a case of aortic stenosis between the left common carotid and left subclavian arteries. Maycock¹⁰ and Kondo et al⁹ presented cases with complete occlusion in the mid-abdominal aorta.

From the available literature, then, our case seems unusual in that it combines the clinical picture and pathological findings of both coarctation and hypoplasia. Unfortunately we do not know the calibre of the abdominal aorta, but must assume that it, too, is hypoplastic.

The incidence of hypoplasia of the aorta varies

in several reports. Ikeda⁸ states that out of 14,305 autopsies at the University of Minnesota there were eight cases; he also states that Von Ritook reported fifty-seven cases in 395 autopsies and Cabot reported nineteen cases in 1846 autopsies. Werley et al¹³ found twenty-five cases in 4500 autopsies. Paul White¹⁴ states that simple hypoplasia of the aorta is probably the commonest of the congenital aortic anomalies, but in high degree is relatively rare and then usually associated with other cardiovascular defects. Maude Abbott⁷ found twenty-one cases of hypoplasia among the 200 cases of coarctation which she reviewed. She commented that since the ascending aorta is so commonly secondarily dilated as a result of coarctation, the original narrowing at this point (ascending and aortic arch) may be obscured in patients attaining adult life. Thus she concludes that the association of congenital hypoplasia of the arterial tract with coarctation may be more frequent than is apparent from reports.

In normal males between the ages of twenty and thirty years, the average circumference of the thoracic aorta studied at necropsy was 4.4 cm., according to Ikeda.⁸ According to these figures our case, with a circumference of 4.7 (diameter 1.5 cm.) falls within normal limits. However, our measurement seems to be near the lower limits of normal and was taken on an aorta distended with blood so that the size is not well comparable with the size of the aorta found at necropsy. Furthermore, Werley, Waite and Kelsey¹³ state that the normal internal circumference of the aorta at its widest point equals 5.5 cm., and they present one case of hypoplasia in which the thoracic aorta measured 1.37 cm. in internal diameter and two others in which the measurements were 1.11 in diameter. Inasmuch, then, as our measurements were taken of the outside diameter and on a living patient, we feel that for practical purposes this aorta must be considered hypoplastic.

In considering an explanation for the hypertension in the upper extremities in our case, several factors seem important. According to the laws of the dynamics of circulation^{4,13} we find we have increased resistance due to the long narrowing of the aorta. Since the volume of flow is proportional to the fourth power of the diameter (Poiseuille law), there is reduced flow to the lower extremities. In compensating for this, the collateral circulation proximal to the narrowing developed. The gradual dilatation of the aorta,

acting much like an aneurysm,⁵ produced a vicious cycle following the principle that in a tube of varying diameter the velocity varies inversely and the lateral pressure directly with the sectional area of the tube. Abramson¹ feels that the increased systolic blood pressure in the upper extremities is largely the result of arteriolar vasoconstriction, although the resistance to blood flow through the narrowest portion of the aorta probably plays a role. The renal blood flow studies which were within normal limits tend to eliminate the kidneys as a factor in the hypertension.

This case allows interesting speculations as to pathogenesis in view of the associated healed (?) tuberculosis of the thoracic spine and marked kyphoscoliosis. Certainly one must admit that failure of the aorta to have developed normally might well be secondary to the marked spinal deformity, particularly since the area of narrowness began immediately adjacent to the point of greatest projection of the spine into the thorax. Burke,⁵ in 1902, interestingly enough, discussed the etiological relationship of aortic hypoplasia and tuberculosis. He concluded that arterial insufficiency tended to predispose to the infectious process. Here we feel that mechanical effects may have been more important. Certainly, however, we cannot deny that the coexistence of these two entities may have been purely coincidental.

Angiographic studies of this case would certainly have been of value, but unfortunately at the time he was submitted for operation, the technique of angiography at our hospital had not been perfected to the point where the risk of the procedure seemed justified.

The question of whether or not this lesion is congenital or acquired arises. In favor of this being congenital are the associated cardiac murmurs and possibly the extent of the hypoplasia. On the other hand, the fact that the narrowing began adjacent to the point of most marked dorsal kyphoscoliosis is in favor of its being acquired. We do not feel that there is sufficient evidence to answer this question completely.

Summary

1. A case of an unusual abnormality in the thoracic aorta which clinically simulated true coarctation of the aorta has been presented.

2. A brief review of the literature on coarctation and hypoplasia of the aorta is included.

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TREATMENT OF AURICULAR FIBRILLATION FROM THE STANDPOINT OF THE GENERAL PRACTITIONER

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THE highest degree of auricular disturbance is called auricular fibrillation. In this condition, the number of auricular impulses is very great, 400 to 600 per minute. Total irregularity (dele-rium cordis) has been thoroughly evaluated by Thomas Lewis² and other early cardiologists. The classical theory of circus movement to explain this abnormality has been universally accepted and has only recently been challenged by Pranzmetal of Los Angeles who photographed exposed hearts of dogs using high speed colored film reproducing the heart action in slow motion.

Auricular fibrillation is the most common cardiac irregularity requiring treatment encountered in hospital records. It probably ranks third in frequency as a disturbance of rhythm, premature beats and paroxysmal auricular tachycardia ranking first and second. White and Jones¹³ analyzed 3,000 patients with cardiac symptoms and signs in 1928. They found 376 of this group (12.5 per cent) with auricular fibrillation; 309 (82.2 per cent) were permanent and 67 (17.8 per cent) paroxysmal in type.

Auricular fibrillation is rare in infants and children and is most commonly found in individuals over forty years of age. It is usually associated with organic heart disease, but may occur in the absence of heart disease associated with excessive use of alcohol, tobacco, or with excitement, trauma, operations (particularly thoracic), acute infections (pneumonia) or chronic infections such as cholelithiasis. White states that the condition is fundamentally a functional disorder and is not in itself to be classified as heart disease. However, in hospitalized cases auricular fibrillation is associated with organic heart disease in a high percentage of cases. Auricular fibrillation occurs frequently in rheumatic valvular heart disease. The triad of rheumatic heart disease, mitral stenosis and auricular fibrillation is a common occurrence. Auricular fibrillation is less frequent in rheumatic heart disease with aortic valvular deformities. In rheumatic heart disease the fibrillation is generally paroxysmal and disappears spontaneously only to recur when valvular de-

formities are present. It is unusual in congenital, subacute bacterial and syphilitic forms of cardiac involvement and in chronic cor pulmonale, although it does occasionally appear in these conditions. In an analysis of 575 cases of auricular fibrillation by McEacheon and Baker⁸ the chief etiologic relationships were: rheumatic heart disease 34.4 per cent, arteriosclerotic heart disease 31.1 per cent, hypertension 16.9 per cent, thyrotoxicosis 7.5 per cent, emphysema 5 per cent, syphilis 3 per cent, and miscellaneous 2.1 per cent.

On observation of the fibrillating heart the auricles appear dilated and inco-ordinated. Contraction is replaced by quivering of the auricular surfaces, while the ventricles beat at totally irregular intervals. There is a decrease in cardiac output per minute and dilatation of the heart irrespective of whether or not heart disease is present, and the state of compensation. Kerkhoff⁹ utilizing the acetylene method of determining cardiac output found the efficiency of the heart in mitral stenosis with auricular fibrillation increased 25 per cent when regular rhythm was restored by quinidine even though prior to conversion the rate was kept at 60 to 70 beats per minute with digitalis. No one, as yet, has reported a series of cases studied by means of right heart catheterization before and after conversion.

During tachycardia there is so little blood in the ventricles when systole occurs, that some contractions fail to open the aortic valve and to expel enough blood to form a radial pulse, accounting for the pulse deficit. At the next systole there will be a greater accumulation of blood, so that the radial pulse will be barely palpable or larger, which accounts for variations in pulse volume. The pulse deficit represents expenditure of cardiac energy which is wasted.

Symptoms vary with auricular rate, the underlying functional state of the heart, and the duration of the auricular fibrillation. In the paroxysmal form, when the ventricular rate is rapid, the picture is similar to that seen in paroxysmal tachycardia except for the arrhythmia and other diagnostic signs of auricular fibrillation. In the chronic form, no symptoms may be present or, if present, they range from palpitation, fluttering,

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skipping, pounding and anxiety, to pallor, cyanosis, breathlessness, syncope, faintness and collapse. Congestive heart failure may be coincidental with, contributed to, or entirely caused by the rapid irregular ventricular rhythm. While angina pectoris is uncommon in chronic auricular fibrillation, it may occur in the paroxysmal form with a rapid ventricular rate when the patient has a predisposing underlying chronic coronary insufficiency. The patient may show distress or fear, may complain of the tumultuous action, may be irritable or may have vague pain. The symptoms are exaggerated when the patient is hypersensitive.

The clinical diagnosis is not difficult; and it is easier if the ventricular rate is quite rapid or before digitalization. On auscultation the rhythm is usually totally irregular. Attempts at discerning any regular sequence of heart beats is met with failure. The pulse is usually slower, and is irregular and of variable volume. Simultaneous auscultation of the heart and palpation of the radial pulse reveals the magnitude of the pulse deficit. The ventricular rate and pulse deficit increase with moderate exercise while the irregularity due to premature contractions is likely to disappear. The ventricular rate may be 180, but usually is 130 to 160, and occasionally is as low as 70 or 80 even without digitalis. Carotid sinus pressure retards the ventricles transiently by depressing the A-V conductivity, bringing out the irregularity at slow rates. The enhancement of A-V conductivity and the acceleration of the ventricular rate by exercise, atropine and amyl nitrate may disclose the irregularity of the beating heart. The cardinal signs of auricular fibrillation in the electrocardiogram are: (1) the absence of P waves, (2) the presence of irregular ventricular beating, except in complete A-V block, and (3) the presence of undulations (F waves) of varying amplitude, contour and spacing, whose rate usually falls between 350-600 per minute.

Sudden death from auricular fibrillation is rare except in the forms associated with coronary disease or an embolus. The formation of thrombi in the auricles, especially in the auricular appendages, is common and may result in emboli to the vascular beds especially evident in the lung, brain, extremities, mesentery, and heart. Sudden death may be caused by emboli or by a ball thrombosis in the mitral wave. When the ventricular rate is slow, patients maintain an adequate circulation for

years without progressive cardiac enlargement or failure. Others carry on satisfactorily when the rate is controlled. The paroxysmal form may lead to no apparent harm in the course of years. Chronic fibrillation does not in itself afford a serious prognosis, but as a complication of heart disease, it comes on usually toward the end of the natural history of the disease.

The treatment of auricular fibrillation is not a standard procedure. Each individual needs to be evaluated clinically and a thorough understanding of the basic cardiac disease should be sought out before therapeutic measures are instituted. Since emotion and exertion tend to speed up the rate of the ventricles, they should be minimized as far as practicable.

If the ventricular rate is slow, if it accelerates only moderately on exercise, and if the patient is without symptoms, special treatment is not indicated, although the use of quinidine should be considered. If the rate is rapid, especially if the patient has heart disease, rest in bed is indicated if possible until it is retarded, and is required if there is failure.

Digitalis is by far the best drug to administer in auricular fibrillation; in fact, its reputation as a cardiac drug rests primarily on the brilliant results obtained when the condition is attended by a rapid ventricular rate and congestive heart failure. The faster the ventricular rate, the more urgent the necessity for therapy to retard the beating of the ventricles. Digitalis acts primarily to reduce the number of impulses passing to the ventricles by depressing A-V conduction, but aside from that it also relieves congestive failure. Digitalis is given either to build up the concentration of the drug in the heart (digitalization) or to maintain the concentration once established. The rate of digitalization varies with the urgency of the case. Digitalis should be given until the desired effect is obtained or mild toxic symptoms appear. The chief toxic manifestations of digitalis are anorexia, nausea, vomiting, diarrhea, yellow or colored vision, frequent premature beats, sino-auricular block and sinus standstill.

In determining the amount of digitalis to be used the goal of 60 to 80 beats per minute at the apex should be kept in mind. If the patient is in bed and digitalis has not been given in three weeks, digitalization may be undertaken rapidly by giving in twenty-four hours by mouth a total of 1.8 gm. of the powdered leaf (U.S.P. XII). In

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the average case, digitalis-folea (U.S.P. XII) 0.2 gm., or digitoxin 0.2 mg. orally three times daily for three days is recommended. This is a rough guide and the patient should be placed on a maintenance dose earlier if the desired therapeutic effect is obtained sooner and conversely should be delayed until more digitalis has been given if the patient responds poorly to the above dosage. The amount of digitalis required is influenced by the body weight, the status of the myocardium, the rate of absorption, the speed of mobilization and excretion, and the amount of edema fluid. These factors operate to affect the levels of digitalis concentration in the myocardial tissue and the level required for therapeutic response. The lowering of the ventricular rate to 70 to 80 beats per minute and the lowering in pulse deficit are valuable indices of the therapeutic response to digitalis. Similarly the disappearance of edema, increased urinary output, weight loss and disappearance of other signs and symptoms of congestive failure should be used. Individuals who reach the full therapeutic or toxic level before four or five days usually require smaller maintenance doses (0.1 gm. of leaf, 0.1 mg. digitoxin), and those who take longer than a week usually require more digitalis as a maintenance dose. The appearance of toxic signs and symptoms calls for discontinuation of the drug. However, it should be resumed and administered cautiously following disappearance or evidence of toxicity.

In the treatment of ventricular paroxysmal tachycardia caused by digitalis excess, quinidine, papaverine, potassium or magnesium have been used to sooth the ectopic pacemaker.

In more urgent cases digitalization may be carried out more rapidly, the full digitalization dose being given in one, two or three doses. It may be given in the form of digitoxin (*Digitaline nativelle*) 1.2 mg. The entire dose or portions thereof may be given orally, intravenously or intramuscularly. Orally the medication is absorbed totally and gives a full effect in a matter of three to four hours, the effect lasts for several days and this drug does not irritate the intestinal tract in therapeutic doses. Its effect parenterally (intravenously or intramuscularly) is similar to oral administration, and the parenteral route is to be used when the oral route is not available. In giving such large doses of this or any other digitalis preparation, extreme caution should be exercised

if the patient has received digitalis recently, especially if edema is present, because ventricular fibrillation can readily be caused. Edema fluid contains digitalis in digitalized patients, and when absorbed the digitalis re-enters the blood stream for distribution together with that administered. It takes two weeks or more for digitalis to be excreted.

If more rapid effects are essential, quicker acting digitalis preparations are to be used intravenously with the same care as with large doses of digitoxin to avoid overdigitalization. The purified crystalline glucoside, lanatoside C, may be used. It is faster in speed of action and rate of excretion when given intravenously than digitoxin. Its effect intravenously begins within an hour. The digitalizing dose of lanatoside C intravenously is 2 mg. It should be mentioned that strophanthin intravenously has been used for rapid digitalization; however, it is rarely being used at the present time.

Occasionally it is desirable to treat auricular fibrillation on an ambulatory basis. Dosage schedules should be calculated on total digitalization plus the total maintenance dose over a given number of days. It is advisable to carry out the digitalization over a period of several days with smaller amounts being given at the end of the schedule. Ambulatory therapy intimates loss of direct supervision, therefore, the patients should be closely instructed in regard to the toxic effect of the medication.

Paroxysmal auricular fibrillation is not an uncommon finding in a general practitioner's office. If paroxysms are infrequent or brief in an otherwise well subject, specific treatment is not required, beyond avoidance of precipitating factors. If, however, the attack has persisted for several hours, if tachycardia prevails, or if the patient is uncomfortable, reassurance, bed rest and sedation should be prescribed. Lack of response to the above treatment indicates the necessity for digitalization which should then be carried out. If the normal rhythm has not been restored by digitalization, quinidine is indicated. Recurrent fibrillation is occasionally prevented by digitalization followed by maintenance doses.

When auricular fibrillation occurs in hyperthyroidism, the ventricular rate is reduced with digitalis. Larger than the average amounts may be required for adequate slowing. Maintenance

doses are continued during treatment with propylthiouracil, iodine, et cetera. After operation in most instances, a few days to many weeks, the rhythm reverts to normal spontaneously. When this occurs, digitalis is discontinued if heart failure does not require its continued use. If normal rhythm has not recurred after an adequate post-operative period the use of quinidine is considered.

Recent myocardial infarction followed by auricular fibrillation with a rapid ventricular rate is a situation calling for heroic therapy. Rapid digitalization is carried out followed by quinidine therapy. Quinidine is advisedly first preceded by digitalis in order to avoid further ventricular acceleration which quinidine may bring on as it slows auricular activity.

Quinidine is a far more effective drug in re-establishing sinus rhythm than digitalis. Wenckebach first introduced quinidine in 1914 for the treatment of paroxysmal auricular fibrillation. Most authorities agree that patients with auricular fibrillation should be digitalized and well compensated before conversion with quinidine should be attempted; however, in recent articles McMillan and Welfare⁹ and Askey¹ state that in patients with congestive failure persisting after complete digitalization, rest, diuretics, and low sodium diet, administration of quinidine to abolish auricular fibrillation at times produces remarkable results.

According to recent articles the only absolute contraindication to quinidine is idiosyncrasy to the drug itself.^{1,4,9} Relative contraindications are pronounced cardiac enlargement, congestive failure, heart block, subacute bacterial endocarditis and angina relieved by fibrillation.

Symptoms of toxicity include the symptoms of cinchonism such as tinnitus, vertigo, visual disturbance, headache, confusion, syncope, fever, nausea, vomiting, diarrhea, cutaneous rash and angioneurotic edema. Serious hazards include ventricular fibrillation, cardiac asystole or respiratory arrest.

At the present time most cardiologists agree that the incidence of embolic accidents with conversion has been greatly overemphasized. Vika, Marvin and White¹² stated that it seemed justifiable to conclude that embolism occurs less frequently under quinidine therapy than under ordinary treatment. In 200 cases of auricular fibrillation without quinidine therapy, these investigators observed nine instances of embolic phenomena

(4.5 per cent) whereas in 484 cases of auricular fibrillation treated with quinidine emboli accrued in fifteen cases (3.1 per cent).

Before attempting the restoration of normal rhythm with quinidine the patient should be placed on bed rest and adequately digitalized. Fahr² recommends a test dose of 3 grains be given. The following morning 3 grains are given at 8, 9, and 10 a.m. Each succeeding day 3 grains are added to the previous dose (Ex.: 6 grains, 3 grains, 3 grains, et cetera). If necessary the total dosage may be raised to 36 grains. He reports a total conversion to normal rhythm in 65 per cent of cases (over 500 cases of fibrillation and flutter).

Levine⁶ recommends 0.2 gm. of quinidine to start and this is increased by 0.1 gm. with each dose. Medication is given three times a day. Up to 1.5 gm. in a single dose have been given but this is not advisable under ordinary circumstances.

Following digitalization, Katz³ uses a schedule of 0.4 grams every two hours until the arrhythmia is broken or until five doses have been given. This may be repeated for two or three days, the dose being increased each day by 0.2 gm.

If normal rhythm is restored, a maintenance dose of 0.2 gm., one to three times daily, may be used. If normal rhythm is restored once, but fibrillation recurs while quinidine is being given, further attempts are not recommended. After normal rhythm is restored prophylactic maintenance dosage should be given for a period of weeks and then stopped, in order to determine whether the ectopic pacemaker is inactive.

References

1. Askey, J.: Quinidine in the treatment of auricular fibrillation in association with congestive failure. *Ann. Int. Med.*, 24: 371, 1946.
2. Fahr, G.: The treatment of cardiac irregularities. *J.A.M.A.*, 111:2268, 1938.
3. Katz, L.: *Electrocardiography*. 2nd ed. Philadelphia: Lea & Febiger, 1946.
4. Katz, L.: Modern management of heart disease, quinidine. *J.A.M.A.*, 136:1028, 1948.
5. Kerkhof, A.: Minute volume determinations in mitral stenosis. *Am. Heart J.*, 11:206, 1936.
6. Levine, S. A.: *Clinical Heart Disease*. 3rd ed. Philadelphia: W. B. Saunders Co., 1945.
7. Lewis, T.: *The Mechanism and Graphic Registration of the Heart Beat*. London: Shaw & Sons, 1925.
8. McEachern, D., and Baker, B. M.: Auricular fibrillation, its etiology, age, incidence and production of digitalis therapy. *Am. J. M., Sc.*, 183:35, 1932.
9. McMillan, R., and Welfare, C.: Chronic auricular fibrillation. *J.A.M.A.*, 135:1132, 1947.
10. Orgain, E., Wolff, L., and White, P.: Uncomplicated auricular fibrillation and flutter; frequent occurrence and good prognosis in patients without other evidence of cardiac disease. *Arch. Int. Med.*, 57:493, 1936.
11. Stewart, H. J.: *Cecil's Textbook of Medicine*. 7th ed. Philadelphia: W. B. Saunders Co., 1947.
12. Vika, L.; Marvin, H., and White, P.: Clinical report on the use of quinidine sulfate. *Arch. Int. Med.*, 31:345, 1923.
13. White, P.: *Heart Disease*. 3rd ed. New York: Macmillan, 1944.

I wish to acknowledge extensive use of References 3, 6 and 13 in the preparation of this paper.

"ANTABUSE" (TETRAETHYLTHIURAM DISULFIDE) IN THE TREATMENT OF ALCOHOLISM

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TO the list of modifications of the treatment of alcoholism proposed in recent years, Jacobsen and Martinsen-Larsen of Denmark contributed clinical reports two years ago on the combined effect of alcohol and Antabuse® (tetraethylthiuram disulfide). Pharmacological and toxicological investigations and animal experiments were outlined by Hald, Jacobsen, Larsen, Asmussen, Jorgensen and others.

The purpose of this presentation is to outline preliminary considerations and to record clinical experiences with the treatment of twenty-six patients during the past year.

Preliminary Considerations

Cyanamides were shown by Koelsch in 1914 to produce toxic effects in workers handling those chemicals when they imbibed alcohol even in small amounts. The symptoms included redness of the face, feeling of giddiness, headache, heightened pulse and respiratory rates. Continuing for thirty to ninety minutes, these were terminated by fatigue and somnolence.

Another sensitizing agent, a fungus termed *coprinus atramentarius*, had been found to be toxic to humans only when alcohol was consumed. Accounts of non-fatal poisoning in a family are referred to by Hald, Jacobsen and Larsen.

Toxicity of tetraethylthiuram disulfide is relatively low; the drug is not soluble in water and is not excreted by the kidneys. A dose of 2 to 3 grams per kilogram of body weight has been proved fatal to dogs and rabbits. Prominent symptoms preceding death include progressive depression, ataxia, slowing of the pulse rate and respiration. Kidney degenerative processes were found to exceed those in the lungs and liver. On the other hand, the continued daily administration of 1 milligram to rats and 60 milligrams to rabbits for ten months failed to reveal impairment of growth, of body weight or of the elements of the blood. Single doses of 3 grams, or of continued

dosages of 0.25 to 1 gram daily in man induced no deleterious results in most instances. Danish workers found that within twelve hours following the ingestion of 1 gram of antabuse, the intake of alcohol produced, after the elapse of five to fifteen minutes, first a feeling of heat in the face and soon thereafter observable reddening of the face, neck and chest. The pulse rate rose to 120 and higher, blood pressure declined slightly, the alveolar carbon dioxide was decreased, cardiac output was increased up to 50 per cent in the resting person, and up to 15 per cent if the subject was moderately active.

Nausea, if at all present, occurs within an hour after the intake of alcohol. Vomiting is less frequent. Dizziness and coma appear to be the result of relatively higher doses of alcohol. Blood pressure falls significantly in these instances. There is the noteworthy observation that inhalations of pure oxygen eliminate the effects upon respiration and cardiac output.

Antabuse administration combined with alcohol consumption brings on a five- to ten-fold rise of the blood acetaldehyde level above that determined when the antabuse is omitted; exact reactions concerned are unknown. A concentration of 5 to 10 milligrams per hundred cubic centimeters in the blood suffices to induce a rise in skin temperature. Coma appears when these figures rise to 100 milligrams or more. Tolerance, apparently relatively high in heavy drinkers, at first decreases gradually. In doses of an average drink, alcohol tends to remain in the blood for some sixty to ninety minutes following intake, and during this period of time antabuse continues capable of producing characteristic symptoms, which are followed by a short period of fatigue and somnolence. The saturation dose of antabuse in humans is not determined. Rabbit experiments are reported to have shown that acetaldehyde formation is augmented as the dosage of alcohol and the drug, the latter up to 0.3 gram per kilogram of body weight, are increased. Hypersensitivity to alcohol is observed to begin three to four hours after antabuse administration in a single dose and to continue for the following twenty-four hours.

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"Antabuse" trade mark for brand of Antabus (tetraethylthiuram disulfide) as manufactured by Ayerst, McKenna and Harrison Limited, who furnished a supply of "Antabuse" employed in this investigation.

Clinical Experiences with Twenty-six Patients

Of our twenty-six patients, six were treated at the Minneapolis General Hospital and twenty in private hospitals. There were twenty-two males and four females. Ages ranged from the mid-twenties to the early fifties, about half in the fifth decade. Nineteen listed themselves as married, one as single, five divorced, one widowed. About one-half of this group of alcoholics gave a history of drinking for their past fifteen to twenty years. With few exceptions, all preferred whiskey and beer. Two preferred beer alone, and one reported that he confined himself to gin. Wine and rum were resorted to by several on some occasions. Other interesting factual material concerning personal history, education, vocational achievements, familial and other interpersonal relationships, hereditary accounts, range of individual abilities and other psychologic test records, behavior in conflict with the law, previous treatments, et cetera, cannot be detailed here. Essentially these data reveal no uncommon deviations.

Objective examinations by bodily systems, psychiatric interviews, special psychologic tests and the following technical examinations were made: (1) routine urine and blood, including the sedimentation rate, (2) fasting blood sugar and sugar tolerance curve, (3) CO₂ combining power, (4) urine concentration and dilution, (5) phenolsulfonphthalein, (6) electrocardiograms, (7) liver function, (8) x-ray of chest, (9) basal metabolism rate, (10) electroencephalogram, and additional procedures in some instances when indicated.

Significant visceral disease, if present, was regarded as a contraindication to antabuse therapy. Naturally, the patient to be treated was expected to feel an unwavering desire to stop drinking liquor and to plan satisfactory co-operation in the long therapeutic program for the future, of which the first two weeks or more in the hospital were to be regarded only as a relatively minor or introductory feature.

Antabuse administration is routinely as follows: On the first day one 0.5 gram tablet is given four times; three times on the second day, twice on the third day, and once in the morning of the fourth day. Three hours following the last dose, the patient takes an ounce to an ounce and a half of whiskey. The attending hospital personnel is expected to have at hand medicinal and mechanical aids to combat possible symptoms of

shock. In addition to general observations, pulse, respiratory and blood pressure notations are made every five minutes for thirty to forty-five or more minutes after the ingestion of whiskey.

The following is an illustrative case report:

Case 1.—J. S., a male, aged forty-eight, married, a construction worker, gave a history of excessive periodic drinking for eighteen years. He had been under Alcoholics Anonymous guidance for some time. There was a history of a "bleeding gastric ulcer" on one occasion in January, 1949. Physical and laboratory data had been negative. He was started on antabuse regime, as outlined above, and on September 6, 1949, he was given 40 c.c. of whiskey, the fourth day. Blushing to a moderate degree appeared five minutes later, preceded by two minutes of a feeling of heat in the head and neck. Slight dyspnea started also in five minutes and perspiration was obviously increased at the same time. Headache of a moderate intensity was complained of within fifteen to forty-five minutes. His pulse rate rose from 80 to 100 after a ten-minute interval; to 125 after twenty-five minutes. Blood pressure fell from 128/86 to 110/80 after twenty-five minutes. There was a slight feeling of dizziness and precordial pain from ten to twenty-five minutes after taking the whiskey. Acetaldehyde odor was also detected during the same period. After moderate somnolence for a half-hour the patient was free of distress.

In two patients of the Minneapolis General Hospital series the state of shock was encountered. The next two reports concern these subjects.

Case 2.—J. C. G., a male, aged forty-seven, divorced, a railroad freight conductor, entered the hospital with history of drinking three bottles (fifths) of whiskey per day for the last six weeks. Food intake had been minimal during that time. Also, during this period he had been seeing "gremlins"; he seemed to realize that these visions were not real. Except for an appendectomy and herniorrhaphy his history had been negative. On admission, his sensorium was found to be clear, he was oriented and co-operative, but he was noted to be engaged in kicking the gremlins down the drain! On September 9 he was given 2 grams of antabuse at 8:00 a.m.; on the 10th, 1.5 grams; on the 11th, 1 gram; on the 12th, 0.5 gram at 8:00 a.m.; on the 14th, 0.5 gram at 10:30 a.m. At 2:25 p.m. on the 14th 1 ounce of whiskey was given. In ten minutes a slight increase in pulse rate and flush of face began to appear. This subsided without other phenomena. The next morning he was given 1.5 grams of antabuse and the following four days another 1.5 grams of antabuse, this at variance from the subsequently established routine. At 10:45 a.m. on the 19th, 40 c.c. of whiskey were given. At 11:10 a.m. his face appeared flushed; blood pressure, normally 118/80, fell to 70/50 in thirty minutes, and the pulse rate rose to 132 in fifteen minutes. The patient became unconscious. Thereupon coramine and caffeine sodium benzoate were

"ANTABUSE" IN THE TREATMENT OF ALCOHOLISM—MICHAEL

injected intravenously and oxygen was administered under pressure. By 12:15 p.m. the patient began to respond, he appeared tremulous, his face was still flushed. He refused the food tray at 12:30 p.m. By 2:00 p.m. his condition appeared to be improved. At 2:30 the patient drank 200 c.c. of milk. By 3:00 p.m. he walked out in the dayroom but still seemed shaky. The next morning he awakened still complaining of some nausea and there was some emesis. At noon time he ate well and felt well until time of discharge.

The third case report indicates, furthermore, what may be expected when sugar metabolism is impaired. In the presence of such an abnormality, we would not again allow antabuse administration.

Case 3.—R. P., a male, aged thirty-one, was confined at the General Hospital from July 1-6, 1949. He was admitted in a stuporous condition, tremulous, with a history of drinking one quart of whiskey with "all the beer I can hold for the last three months." He had not eaten for the past week. He became more and more incoherent and had hallucinations of bugs crawling on the ceiling and walls. Physical examination revealed a tachycardia, sonorous type of breathing, liver enlarged 2 centimeters below the right costal margin in the medial costal line. He was re-admitted seven days following his discharge, which made the fifth admission because of delirium tremens. At this time the patient agreed to take antabuse treatment. An extensive physical check-up was performed and numerous tests were made with the following results: An electroencephalogram showed low voltage and fast waves; conclusion, borderline electroencephalogram. The basal metabolism rate was minus 20 per cent. An electrocardiogram was within normal limits. The fasting blood sugar was 75 mg. per cent. The glucose tolerance test was performed on two occasions, both showing gross abnormalities. On the first occasion the blood sugar level was 110, after one-half hour 300, after one hour 430, after two hours 150, and after three hours 40. Kidney dilution and concentration test yielded specific gravities varying from 1.001 to 1.030. The PSP test indicated a total of 70 per cent. The blood albumin was 4.09, globulin 2.21. Bromosulfalim test of liver function: "No dye retained." The patient was given 200 mg. of vitamin B₁ and 40 units of insulin on admission because of extreme restlessness, gross tremor and visual hallucinations. At first being quiet, he suddenly jumped out of bed and, then returning to bed, developed a generalized spontaneous convulsion. Following this he was more quiet and expressed no hallucinations. The antabuse treatment was started on July 27 with the usual decreasing doses of antabuse, starting with 2 grams. On the fourth day he was given 40 c.c. of whiskey. He developed mild dyspnea and complained of suffocating. After approximately one-half hour of oxygen, caffeine and insulin had to be administered. The patient developed a very marked fear and anxiety. His pulse became imperceptible and the skin was an ashen gray. The patient stated that he felt as if "the DT's were coming." Oxygen under pressure was administered for twenty

minutes and gave good relief. This was repeated twice. The blood sugar then was 150 mg. per cent and the urine was negative for sugar and acetone. Following this occurrence, the patient was put on a cautious daily antabuse dosage of 0.25 gram and was discharged on this dose after a second trial of whiskey, which caused only mild reactions. Though the patient was quite impressed by the reaction of whiskey, he returned to drinking soon after his discharge. He failed to accept follow-up outpatient management.

The following case is reported to illustrate a marked influence on the blood pressure.

Case 4.—B. M., aged thirty-six, a farmer's wife, had drunk to excess periodically since the time she was married to her first husband, from whom she obtained a divorce five years previously. All preliminary clinical and laboratory investigations proved negative, except that her red blood cell count was 3,600,000 and hemoglobin 76 per cent. Besides drinking excessively four months prior to admission to Glenwood Hills Hospital she had taken twelve capsules of 1.5 grains of nembutal daily. A thyroidectomy had been performed in 1946. She was given whiskey at 10:00 a.m. on the fourth day of routine antabuse administration. Her normal blood pressure of 116/72 changed as follows: 10:20, 116/70; 10:30, 102/30; 10:35, 98/28; 10:40, 70/28; 10:45, 84/22; 11:00, 80/30; 11:05, 74/40; 11:30, 78/30; 12:15, 72/42; 12:45, 90/34; 6:00, 120/79. During the first four hours she complained of headache. Two days later whiskey was again administered. One and three-quarters hours later the blood pressure reading was 68/34; the pulse and also breathing continued to be strong. Again a slight headache was complained of for a period of several hours.

Case 5.—M. S., a widow, aged fifty-one, had been a heavy lone drinker for seven years who was started on the antabuse regime three weeks following recovery from her last debauch. No physical nor psychic stigmata were noted until the third day of antabuse administration. Then first signs of memory defect were noted. Antabuse was then discontinued. During the following two weeks it appeared that memory weakness and some degree of reduction in general interests and activity were changing for the better. Antabuse was again prescribed in the amount of 0.5 gram each day. In four or five days there again appeared more signs of psychic deterioration. In the course of the following month without antabuse there has been no change. No signs of peripheral neuritis have been established.

This case is presented because of the suggestion that antabuse might be a factor in hastening central nervous system degeneration. Satisfactory proof that this may be so is lacking. However, the mere suggestion is viewed worthy of future attention.

Results of Treatment

At the time of this writing, the twenty-six patients can be characterized as follows: (1) eleven, no drinking; (2) eight, significant improvement but return to one or more brief bouts of drinking; (3) three, slight improvement; (4) four, no improvement. If we limit our review to the twenty more promising private practice group, we can say that 40 per cent have abstained from drinking and another 40 per cent have done well most of the time. These 80 per cent have lived useful lives socially and economically. Naturally, as more time elapses these figures may change to some degree—probably a reduction of the number in the first group and a corresponding rise in the second, now 40 per cent of the total series. In the small General Hospital group treatment results ended in failure in two-thirds of the six patients, whereas one-third are significantly improved. In the instances when there was a return to drinking, the patients who maintained much sobriety, we can say, alone or more often with the help of the spouse or other relative succeeded in terminating their fling in short order. Patients in this group, as indeed all those taking antabuse, require continued psychotherapeutic care for many, many months.

Antabuse, in the last analysis then does not remove the personality problem from the alcoholic who still must deal with his restlessness and tense inner feelings, particularly at intervals. The deteriorated alcoholic is not a favorable subject for antabuse treatment; the patient with visceral disorder must be rejected lest likelihood of fatal terminations face the therapist. Furthermore, no patient should be accepted for treatment unless he has a convincing willingness and determination to prepare for an ever sober life. With the drug taken in 0.5 gram doses once per day in tablet

form, the patient is given an extra handle, so to speak, with which to combat safely the inevitable wavering at some time or another in his future. The therapist can derive deep pleasure when, as happens occasionally, a patient comes to report frankly and proudly that he, though taking his medicine regularly, did want to just try a swig and adds, "Oh, Doc, it didn't taste right, I just did not want any more of it—I guess I will make it."

Summary

Historical notes and experimental work described in the literature, as well as reports on early clinical experiences by Danish physicians concerning tetraethylthiuram disulfide in the treatment of alcoholism, are reviewed. Therapeutic procedures with twenty-six patients are described. Results reported show a significantly higher improvement rate in the treatment of patients in private practice than in those cared for in a public hospital service. The greater incidence of physical and mental deterioration in the latter group served to limit the extent of antabuse treatment. The dangers encountered are described in illustrative case reports; these are reduced effectively by rejection of patients with physical and psychic defects. There were no fatal terminations in this series. The importance of adjunct psychotherapy is stressed.

Bibliography

1. Hald, J.; Jacobsen, E., and Larsen, V.: Sensitizing effect of tetraethylthiuram disulphide (antabuse) to ethyl alcohol. *Acta pharmacol. et toxicol.*, 4:285, (Dec.) 1948.
2. Asmussen, E.; Hald, J.; Jacobsen, E., and Jorgensen, G.: Studies on the effect of tetraethylthiuram disulphide (antabuse) and alcohol on respiration and circulation in normal human subjects. *Acta pharmacol. et toxicol.*, 4:297, (Dec.) 1948.
3. Hald, J., and Jacobsen, E.: Formation of acetaldehyde in the organism after ingestion of antabuse and alcohol. *Acta pharmacol. et toxicol.*, 4:305, (Dec.) 1948.
4. Asmussen, E.; Hald, J., and Larsen, V.: The pharmacological action of acetaldehyde on the human organism. *Acta pharmacol. et toxicol.*, 4:311, (Dec.) 1948.
5. Larsen, V.: Effect of antabuse in combination with alcohol on experimental animals. *Acta pharmacol. et toxicol.*, 4:321, (Dec.) 1948.
6. Jacobsen, E., and Martensen-Larsen, O.: Treatment of alcoholism with tetraethylthiuram disulfide (antabuse). *J.A.M.A.*, 139:918, (April 2) 1949.

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References

1. Abramson, David I.: *Vascular Response in the Extremities of Man in Health and Disease*. Chicago: University of Chicago Press.
2. Apelt, F.: Ueber die allergische Enge des Aortensystems. *Deutsch. med. Wchnschr.*, 31:1186-1189 and 1233-1236, 1905.
3. Bahnson, H. T.; Cooley, R. N., and Sloan, R. D.: Coarctation of the aorta at unusual sites. *Am. Heart J.*, 38:905-913, (Dec.) 1949.
4. Best, C. H., and Taylor, N. B.: *Physiological Basis of Medical Practice*. 53 ed., Chap. 14. Baltimore: Williams and Wilkins, 1950.
5. Burke, Joseph: Congenital narrowness of the aortic system. *New York State J. Med.*, 2:286-297, 1902.
6. Goodson, W. H.: Coarctation of the aorta (a report of two unusual cases). *New England J. Med.*, 216, 339 (Feb.) 1937.
7. Hamilton, W. F., and Abbott, Maude E.: Coarctation of the aorta of the adult type. *Am. Heart J.*, 3:381, 1928.
8. Ikeda, K.: Hypoplasia of the aorta as possible cause of cardiac hypertrophy. *Minnesota Med.*, 16:172-186, (March) 1933.
9. Kondo, B.; Winsor, T.; Roulson, B., and Kuroiwa, D.: Congenital coarctation of the abdominal aorta. *Am. Heart J.*, 39:306-313, (Feb.) 1950.
10. Maycock, W.: Congenital stenosis of the abdominal aorta. *Am. Heart J.*, 13:633-646, (June) 1937.
11. Parker, R. L., and Dry, T. J.: Coarctation of the aorta at an unusual site associated with congenitally bicuspid aortic valve. *Am. Heart J.*, 15:739, (Dec.) 1938.
12. Valentine, N., and Nicholl, R. J.: Aortic hypoplasia with associated vascular and genitourinary anomalies. *Am. Heart J.*, 30:514-19, (Nov.) 1945.
13. Werley, G.; Waite, W. W., and Kelsey, M. P.: Aortic hypoplasia. *Texas State J. Med.*, 39:467-70, (Jan.) 1944.
14. White, Paul: Cited by Ikeda.*

EMERGENCIES IN THE NEWBORN PERIOD

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A DISCUSSION of all of the emergencies which might occur during the newborn period is beyond the scope of this paper. The more common problems will be covered briefly. The discussion will be primarily related to the presenting symptom, differential diagnosis, and treatment.

Cyanosis and Abnormal Respiration

Cyanosis is probably the most frequent alarming symptom prompting the nurse in charge to call the physician. The cyanosis is usually associated with some abnormality of respirations. In Table I are listed the conditions one must consider in the differential diagnosis when called to see a newly born cyanotic infant who may or may not have abnormal respirations or who may present abnormal respirations as the primary symptom.

Many newborns may evidence a venostatic type of cyanosis of the face and distal parts of the extremities during the first hours after birth. No treatment is required and clearing is spontaneous.

During the first three days after birth most infants have episodes of vomiting and retching. While retching, the infant may become moderately cyanotic as any of us would do under similar circumstances. There may even be transient convulsive twitchings. These are similar to those seen in an older child in association with a paroxysm of crying following an injury. No treatment is indicated except the turning of the baby face down to avoid aspiration of the vomitus. One is tempted to aspirate the nasopharynx vigorously, but this only stimulates the gag reflex, more and accomplishes little. Can you imagine how it would feel to have a large syringe vigorously poked about your throat when you are vomiting?

Before proceeding in the differential diagnosis, one should, as a general rule, administer oxygen continuously to all infants evidencing cyanosis. One may then make every effort to determine the cause of the difficulty. Oxygen may be provided by any one of many methods, ranging from the tube held close to the infant's face to the very elaborate oxygen chambers. We have found a

TABLE I. CYANOSIS AND ABNORMAL RESPIRATIONS
IN THE NEWBORN

A. "Normal" cyanosis of face and extremities
B. "Cyanotic spell" associated with retching
C. Oversaturation from anesthesia of delivery
D. Inadequate respirations due to:
1. Obstruction to airway
a. Nasal
b. Nasopharyngeal: tongue, cyst
c. Laryngeal: lesions of false and true cords, congenital laryngeal stridor
d. Large bronchi: web, plug
e. Vascular ring
f. Tetany
g. Tracheo-esophageal fistula
2. Lesions diminishing vital capacity
a. Atelectasis
b. Pneumothorax
c. Pneumomediastinum
d. Diaphragmatic hernia
e. Congenital anomalies of lung
f. Cysts: lung, mediastinum
3. Neuromuscular disturbance
a. Cerebral hemorrhage
b. Massive adrenal hemorrhage
c. Amytonia congenita
d. Hematomyelocoele
E. Congenital heart disease
1. Abnormal shunt
2. Heart block
3. Paroxysmal tachycardia
4. Anomalies of coronary arteries
F. Poisoning
1. Aniline dyes
2. Nitrites
G. Unexplained: failure to establish adequate respirations

homemade boxlike hood with clear plastic sides to work very well.

Slow and shallow respirations may occur in the infant if heavy sedation of the mother has been necessary in a complicated delivery. Resuscitation may have been difficult. Oxygen and stimulants such as caffeine sodiobenzoate may be given. The infant should be in a heated crib or incubator.

Cyanosis as a result of inadequate respirations secondary to obstruction of the airway is usually accompanied by suprasternal and infracostal retractions and by inspiratory stridor of some degree. The most frequent cause of this type of respiratory difficulty in the newborn is obstruction of the nares. It is not at all uncommon to see an infant, especially a premature infant, with cyanosis and marked retractions completely relieved by the simple removal of mucous plugs deep in the nares. This cause of respiratory obstruction, though the most common, is very frequently overlooked.

Lesions of the tongue such as idiopathic macroglossia, micrognathia or a cyst of the cecal foramen of the tongue or epiglottis may produce marked obstructive symptoms. Supraglottal obstruction is usually characterized by a coarse in-

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spiratory stridor with a clear cry, and often a diminution or absence of the stridor when the infant is held face down or the tongue and mandible are thrust forward. Lateral roentgenograms of the soft tissue of the cervical region may demonstrate the lesion. Definite diagnosis can usually be made by direct laryngoscopy. Tracheotomy may be necessary as an emergency measure and removal or correction of the obstruction deferred. If one is not prepared to do a tracheotomy, an intratracheal catheter or a small Mosher cannula may be passed until tracheotomy can be done. Oxygen should be given continuously.

Lesions of the true or false vocal cords will produce marked obstructive symptoms and are characterized by a very hoarse cry or aphonia, and by lack of change in the stridor when the position of the infant is altered.

Obstruction of the main bronchi may be due to a thick plug of mucus, or to a congenital web. Physical examination will usually suggest this type of obstruction and a roentgenogram of the chest will substantiate the diagnosis. Primary lobular atelectasis of a degree great enough to cause marked respiratory embarrassment is uncommon. Aspiration of the mucous plug or dilation of the web is usually accomplished by a single bronchoscopic examination.

A vascular ring, tetany or tracheo-esophageal fistula may produce abnormal respirations. Early diagnosis of tracheo-esophageal fistula has become especially desirable since corrective surgical measures have been developed for this anomaly. The diagnosis is usually not made until the infant is offered a feeding, and vomiting follows. There are three points that should make one suspicious of this anomaly even before the infant is offered his first feeding. First, there is usually a rather noisy gurgling type of respiration. Second, the vomiting is not the usual spitting up and retching associated with the expulsion of swallowed air but is a rather continuous "spilling out." Third, the vomitus is clear mucus in contrast to the usual vomitus stained dark with swallowed amniotic fluid, blood and bile. If one is at all suspicious of an esophageal atresia, he may simply attempt to pass a small gavage tube, usually a 10 F. catheter. If obstruction is encountered, then the infant should be examined fluoroscopically and a small amount of radiopaque material instilled through the catheter. Once the diagnosis has been established, an operation should be done as soon as

possible, and under no circumstances should anything be offered by mouth. Aspiration pneumonia is the complicating factor in these infants, and every effort should be made to avoid it.

Lesions diminishing the vital capacity may be the cause of cyanosis and abnormal respirations. When infants are examined routinely, it is not unusual to detect a lobar atelectasis which is proved by roentgenogram. There may be very little in the way of respiratory difficulty. Ordinarily these conditions clear up spontaneously in a few days, and bronchoscopic aspiration is rarely indicated unless there is definite respiratory embarrassment. Another type of atelectasis is the diffuse patchy type which may or may not be shown roentgenographically. The only physical finding may be a generally decreased exchange of air accompanied by cyanosis and labored respirations. Bronchoscopic aspiration is of little value in this instance as the obstruction is diffuse and in the smaller bronchioles. Oxygen, feedings by gavage to conserve the infant's energy, and as little manipulation as possible are indicated. Carbon dioxide and oxygen inhalations may be given at intervals primarily to decrease the viscosity of the intrabronchial mucus. They are of questionable value. My colleagues and I have used a saturated solution of potassium iodide at the rate of 3 to 4 drops every three hours for six doses to attempt the liquefaction of the mucus. It is extremely difficult to say whether this has been of real value or not.

Spontaneous pneumothorax may decrease the vital capacity to the extent of respiratory embarrassment and even death. We recently encountered such a case in which immediate withdrawal of air, even before roentgenograms were taken, was a lifesaving procedure. Spontaneous pneumothorax is discovered frequently, as is atelectasis, when physical examinations of the newborn are done routinely. It is only the very rare one that requires aspiration of air. The usual physical findings of hyperresonance, diminution of breath tones and possible displacement of the heart are present. Roentgenograms show the pneumothorax.

Pneumomediastinum may present a difficult diagnostic problem. A fullness of the anterior part of the chest, hyperresonance over the mediastinum, and distant muffled heart tones with fairly marked respiratory distress will suggest the diagnosis. A roentgenogram of the chest in the lateral position will show the air in the anterior medias-

tinal space. Needle aspiration of the trapped air will give relief.

Diaphragmatic hernia, cysts of the mediastinum and cysts of the lung may diminish the vital capacity enough to cause respiratory embarrassment. The diagnosis is usually made by roentgenogram, and, if indicated, a small amount of barium may be given to discern the location of the stomach. The treatment is usually surgical.

Cyanosis with suppression of respirations and no evident obstructive lesions may be due to intracranial hemorrhage or collapse secondary to a massive adrenal hemorrhage. Our general policy in both diagnostic and therapeutic procedures when intracranial bleeding is suspected is to be guided by the patient's general condition and whether benefit may reasonably be expected from the procedure undertaken. Treatment and diagnosis of intracranial bleeding will be discussed further in relation to the presenting symptom of convulsions.

Congenital heart disease may be the cause of cyanosis. There is usually no respiratory distress associated. A murmur may or may not be present. The cardiac silhouette in the roentgenogram may be abnormal, and the electrocardiogram may be of some assistance. If the cyanotic infant is fairly vigorous, presents no neurologic symptoms and evidences no respiratory distress, one will usually think of a congenital abnormality of the heart. Paroxysmal tachycardia, with a rate of more than 200, and possible hepatomegaly should not be overlooked. A heart rate of less than 60 should suggest heart block, and this will be confirmed by an electrocardiogram. Digitalization may be indicated in the treatment of the paroxysmal tachycardia; there is usually nothing specific to do for the infant with heart block. We have recently observed an infant with complete auriculoventricular dissociation. The heart rate has consistently been between 40 and 50 beats per minute. The infant is now approximately six months old and doing well. Anomalies of the coronary arteries may be the cause of sudden unexplained death in the newborn period.

Poisoning with the aniline dyes occasionally used by the laundry in marking diapers and shirts is mentioned as a rare cause of cyanosis. We in Minnesota are particularly aware of the methemoglobinemia due to an excessive amount of nitrites in the water, although this will rarely be seen during the newborn period.

TABLE II. CONVULSIONS IN THE NEWBORN PERIOD

A.	Occasional convulsive twitches associated with retching and gagging
B.	Cerebral edema
C.	Intracranial hemorrhage
D.	Meningitis
E.	Tetany
F.	Kernicterus
G.	Massive adrenal hemorrhage
H.	Toxoplasmosis
I.	Unexplained

The last group listed is termed "unexplained." Failure to establish adequate respirations seems at present to state the fact without necessitating a primary diagnosis such as atelectasis. The role of the so-called hyaline membrane as a factor in the failure to establish adequate respirations is certainly open to question. If it is found in as many as 50 per cent of prematures who fail to survive, why isn't it found in the other 50 per cent? How often was it present in that group who survive? Atelectasis is a frequent diagnosis made both clinically and at postmortem examination in premature infants who fail to survive. Atelectasis by definition means imperfect expansion, so this diagnosis is usually correct just as heart failure would be correct in this or any other death. What is the cause of the imperfect expansion? Immaturity does not seem to be a satisfactory explanation in all cases. The problem of the establishment of adequate respiration is the one great primary problem in the care of the premature infant. Feeding, protection from infection and general nursing care are obviously of secondary importance to adequate respirations.

Convulsions

Convulsions occurring during the newborn period usually require emergency attention just as they do at any age period. The causes of convulsions at this age are listed in Table II in descending order of frequency of occurrence.

The "blue spells" discussed previously as occurring during the first few days and associated with gagging and retching are occasionally accompanied by transitory convulsive twitches of the extremities and facial muscles. No treatment is required and there are no sequelae.

How may one proceed to make a differential diagnosis and then offer treatment when called to see a newborn infant having convulsions? A general evaluation of the infant's condition may give some clues. If it has gray cyanosis, has the appearance of deep shock and is generally flaccid, the lesion is probably a massive intracranial or adre-

nal hemorrhage. What is the infant's position? An infant with head retracted, arms and legs extended and a staring expression is suggestive of an intracranial lesion. A high-pitched cry much like a short scream and the adder-like protrusion of the tongue are both associated with cortical irritation. Are the convulsions localized to one extremity or one side? Persistent unilateral convulsions suggest the possibility of a subdural hemorrhage. Is there generalized hyperirritability, muscular twitching or carpopedal spasm? These may suggest tetany.

The general physical examination may yield little in the way of positive information. The fontanelle may be bulging and the sutures separated. This finding is rarely present. If ophthalmoscopic examination is done by an experienced person, the knowledge of absence of retinal hemorrhages may be of more diagnostic value than their presence. Retinal and subconjunctival hemorrhages are seen in 20 to 30 per cent of all newborn infants. Retinal hemorrhage is often one of the findings in subdural hematoma, so the absence of retinal hemorrhage might aid one in ruling out the presence of a subdural hematoma.

Nuchal rigidity is not a dependable sign in the newborn. The pulmonary exchange may be adequate but shallow and irregular, and slow respirations may be due to intracranial bleeding. The heart tones may be weak and the rate rapid. Abdominal examination usually does not disclose any abnormality but may reveal large masses which might be polycystic kidneys, with secondary uremia and convulsions.

Examination of the extremities for spasticity or flaccidity may be of some help. If there are positive findings, spasticity is usually the more frequent. Evaluation of the deep reflexes may be of some aid, but in the newborn period they are so variable that they often are misleading.

If there is any suggestion that the disease is tetany, one should not hesitate to immediately give calcium gluconate intravenously. If the convulsions are due to hypocalcemia, there will be a rapid response. One does not ordinarily treat a condition blindly but in this case such action seems justifiable. It does not seem wise to wait for the laboratory report on the blood calcium before giving calcium when there is apparently little risk involved in giving the calcium slowly in the absence of hypocalcemia. Our practice has been, when possible, to withdraw blood for determina-

tion of the concentration of calcium and then give 4 to 5 c.c. of a 10 per cent solution of calcium gluconate while the needle is in place.

The next decision to make is in regard to lumbar, cisternal, subdural or ventricular puncture. As always, one must ask himself, will this benefit the patient? It does not seem wise to attempt these procedures for the sake of diagnosis only, unless it will be of aid in guiding subsequent therapy. There are some who are quite conservative and feel that lumbar puncture should be done rarely and others who feel that repeated lumbar punctures should be done in cases of intracranial hemorrhage. I personally prefer the more conservative régime and do lumbar punctures as diagnostic procedures or rarely to relieve intracranial pressure when indicated. If difficulty is encountered in doing a lumbar puncture and the urgency of the situation warrants, cisternal puncture may be done. If there are localizing neurologic findings or other symptoms suggestive of subdural bleeding, subdural puncture may easily be done in the newborn. Ventricular puncture may be indicated.

I should like again to emphasize that the positive diagnosis of intracranial hemorrhage in the newborn is not a simple diagnosis to make. The condition is found frequently at postmortem examination when there was no suggestion clinically. The presumptive diagnosis is often made clinically and not substantiated at postmortem examination. This causes one to be extremely cautious in making a positive diagnosis of intracranial bleeding during the newborn period and especially hesitant to attribute subsequent neurologic abnormalities, such as a cerebrosplastic palsy, to intracranial bleeding during the newborn period without definite evidence.

Convulsions may be the only symptom suggestive of meningitis at this age. Neurologic symptoms associated with intracranial bleeding are usually manifest within the first day or two of life. Convulsions occurring after this period may more frequently suggest an infectious process. Fever and leukocytosis may or may not be present. A definite diagnosis can usually be made only by examination of the spinal fluid.

Massive adrenal hemorrhage may present a clinical picture similar to that of massive intracranial hemorrhage. Hyperthermia and deep shock are the usual manifestations, and yet recently we have seen an infant with convulsions

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THE RANA PAPIENS FROG TEST FOR PREGNANCY

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IN the practice of obstetrics and gynecology, a rapid, simple, accurate office test for pregnancy is extremely desirable. Such criteria will apparently be met by the new *Rana pipiens* frog test, first introduced only two years ago by Wiltberger and Miller²⁰ and Robbins and Parker.^{16,17} During the past six months, I have performed in my office eighty-seven pregnancy tests according to the technique of Cutler,⁴ in an attempt to evaluate the accuracy of this test, as well as to aid in clinical diagnosis and treatment. My results have substantiated those of previous writers. As a clinician, I have found it extremely satisfactory, and, compared to the Friedman test, far more rapid, requiring only two to four hours, as compared to forty-eight. It is less expensive and equally reliable, provided its limitations are well recognized and strict adherence to certain technique standards noted. These I will outline briefly, attempting to explain the reasons why certain modifications of the test are of such importance in maintaining a high degree of accuracy.

The principle of the *Rana pipiens* frog test is based upon the Mainini reaction, which was first described by Galli Mainini in 1947.⁹ This reaction is the release of sperm in the urine of South American male toads following the injections of gonadotrophic hormones. Injection of pregnancy urine into the male North American frog, *Rana pipiens*, produces the same reaction, provided the level of chorionic gonadotropin is sufficient.

Technique

Adult male frogs are shipped by air from Wisconsin at a reasonable cost. The animals are maintained in a covered enameled pan in an electric refrigerator maintained at a temperature of 10 degrees Centigrade. By this means, the frogs are kept in a state of hibernation and require no food or attention. The bottom of the pan is covered with fresh water, which is changed daily. During the spawning season in the spring and early summer, a spontaneous mortality was rather frequent; but prior to and since that season, the animals have remained in the refrigerator in a healthy state for as long as four weeks at a time.

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When the urine arrives at the laboratory, the animal is removed from the refrigerator and placed in a beaker to "thaw out" for thirty minutes prior to injection. The Scott kaolin adsorption method⁴ of concentration of urine is used. This technique of urine concentration is a relatively simple procedure which can be performed by any qualified laboratory technician. No elaborate equipment is required, and it does not consume over thirty minutes. Sex of the frog should be carefully noted. The male is distinguished by large pigmented thumbs, inflated air sacs and croaking (Fig. 1). One c.c. of the final product is injected into the dorsal lymph sac of the frog (Fig. 2). The animal is then replaced in the beaker. After thirty minutes, the frog's urine is obtained upon a slide, and a drop examined for sperm (Fig. 3). A positive response usually appears within thirty to forty minutes after injection, never later than three hours. There are usually large numbers of sperm actively motile and easily recognized under low or high dry magnification. The sperm of *Rana pipiens* are considerably larger than human sperm. Their heads are cylindrical or cigar-shaped. Absence of sperm for three hours constitutes a negative test. Animals showing negative responses may be reused after three to four days, but should be promptly returned to the refrigerator in the interim. Animals showing positive responses are destroyed.

Discussion

Chorionic gonadotropin appears in the urine of pregnant women a few days following implantation of the ovum between the twenty-second to the twenty-fifth cycle days. By cycle days, we refer to the number of days following the last menstrual period. By the thirty-second cycle day, chorionic gonadotropin has risen to 200 to 500 rat units per liter. It is at this point that hormonal pregnancy tests may become positive. The earliest positive frog test reported occurred on the thirty-fourth cycle day. Our earliest positive reaction was noted on the thirty-fifth cycle day. Chorionic gonadotropin excretion rapidly rises thereafter to reach a peak between the fifty-second to the sixty-fifth day of 133,000 to 400,000 rat units per liter. After the sixty-seventh day, the excretion of

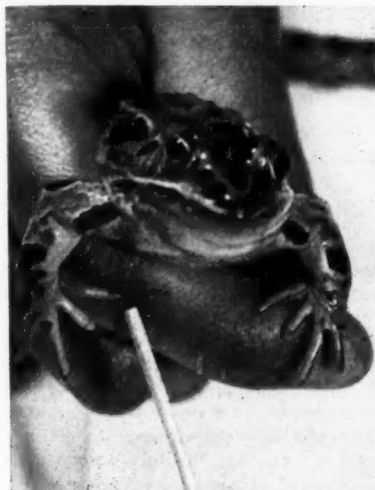


Fig. 1. Male frog is distinguished by large pigmented thumbs and air sac.



Fig. 2. One c.c. hormonal concentrate is injected into dorsal lymph sac of frog. Injection should be made just beneath the skin. Care should be taken not to puncture the lung.



Fig. 3. Frog's urine is obtained upon a slide by flexion of legs.

chorionic gonadotropin drops sharply, reaching low levels around the sixth month, rising slowly again towards the end of pregnancy. Inasmuch as the positivity of this test is dependent upon there being a certain amount of chorionic gonadotropin in the injected urine, probably around 10 rat units, a positive response cannot be obtained with certainty before the fourth week of pregnancy (forty-second cycle day). Therefore no negative test should be accepted before the forty-second cycle day. However, a positive response is dependable at any time of gestation, inasmuch as we know of no condition under which false positives occur. Physiologically in the frog it is the luteinizing hormone secreted by the anterior pituitary gland which produces the release of sperm. Follicle stimulating hormone does not have this effect. The fact that follicle stimulating hormone does not release the sperm gives the frog test a definite advantage over the Friedman test, inasmuch as false positive reactions are eliminated in testing menopausal urines. The Friedman test does not have this advantage. False positive Friedman tests are frequently noted in the menopause, due to the large amount of follicle stimulating hormone in menopausal urine which produces follicle formation in the rabbit.

Another big advantage of the male frog pregnancy test is the rapidity with which the response becomes negative after the separation of

the chorionic villi when abortion becomes inevitable. This fact was pointed out by Wiltberger and Miller, who state that the male frog test becomes negative ten to twelve hours after the termination of pregnancy. In four threatened abortion cases, we noted a change in response from positive to negative even *before* the abortion was completed. With the Friedman test, a positive reaction may persist seven to ten days after pregnancy is terminated.

Results

Mainini utilized his reaction in the detection of pregnancy by injecting 10 c.c. of whole urine into South American toads and examining their cloacal specimens for sperm. In over 2,000 tests, he reported no false positives and an accuracy of 99.01 per cent through the fifth month of pregnancy. Shortly after Mainini's report, two articles appeared in this country by Wiltberger and Miller²⁰ and Robbins and Parker.^{16,17} These workers substituted the North American frog, *Rana pipiens*, with equally good results. The North American toad, the British toad, and British frog, *Rana esculenta*, have also been reported as being entirely satisfactory animals for this test. Since the first article in 1948, a number of laboratories have reported their experiences with the *Rana pipiens* test. There is a wide variation in technique among the different authors.

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All agree as to the absence of false positive reactions. The accuracy of this test is reported as being extremely high by all but three writers^{2,10,18} who report a rather large number of false negatives. It is noted in their articles that unconcentrated urine was used and in small amounts, that all stages of gestation were included in their final figures, that the frogs were not refrigerated and were re-used. As stated previously, this is a test for the presence of chorionic gonadotropin in the urine, and there is a definite threshold at which the test becomes positive. Obviously, the incidence of false negative responses will be lower in those laboratories where the urine was concentrated or where larger amounts of urine were injected and when pregnancy urine in the first trimester only was tested. Improved results are also noted where the animals are not re-used, at least those animals which have previously shown positive responses. One is prohibited from using large doses of whole urine because of the high frog mortality which results. Use of the Scott kaolin adsorption method allows for the injection of the hormonal content of 20 c.c. of urine by injecting only 1 c.c. of detoxified hormonal concentrate. In only three reports of the *Rana pipiens* test to date has concentrated urine been used, and in these reports, the results have been extremely encouraging (Cutler,⁴ Brody,³ Maier¹³). Our results with the urine concentrate confirm the work of these writers. In performing our tests, we have followed closely the technique of Cutler. He reported a 99 per cent accuracy and no false positives in 200 cases. His two false negatives resulted from the re-use of frogs. After discontinuing the re-use of frogs which have previously shown positive reactions, there were no more false negative responses. In our eighty-seven consecutive tests performed to date to aid in the diagnosis and treatment of difficult clinical problems, there were two false negatives. One test was performed before the fourth week of pregnancy, and the specific gravity of the urine was less than 1.010. Only one animal was used in this test. We have since instituted the policy that all negative responses must be corroborated by the use of two frogs. Our second false negative was a test performed upon a woman on her supposedly fifty-seventh cycle day. A repeat test one week later was positive. This patient gave a history of recurrent episodes of amenorrhea, and it is possible that the first test was performed

actually earlier in gestation than the fifty-seventh cycle day would indicate. Moreover, only one frog was used in the first test. The policy which we have arrived at to eliminate as many false negative responses as possible and yet to conserve our technician's time and our laboratory animals are as follows:

Two and one-half c.c. of filtered whole urine are injected into one frog. The urine must be a morning specimen with specific gravity of at least 1.010, providing there are 100 c.c. If the volume of urine is less than 100 c.c., a specific gravity of 1.015 is necessary. If the response is positive, the test is completed, usually within one to two hours. If the test is negative after three hours, the urine is then concentrated and injected into two additional animals. If the response is still negative but less than two weeks have elapsed since the patient's last menstrual period (less than the forty-second cycle day), the test is repeated in one week. A negative response should never be accepted before the forty-second cycle day.

Summary

I have found the *Rana pipiens* frog test for pregnancy an excellent and indispensable aid in clinical practice. The work of Cutler, Brody and Maier has been herewith confirmed. In the performance of the test, I should like to stress the importance of meeting the following criteria:

1. Refrigeration of healthy frogs.
2. Careful differentiation as to sex.
3. Duplication of animals (at least in negative responses).
4. No re-use of animals that have shown positive responses.
5. Morning urine specimens of no less than 1.010 specific gravity.
6. Concentration and detoxification of urine (Scott kaolin adsorption method).
7. Non-acceptance of negative responses before the forty-second cycle day.

Bibliography

1. Bach, I., and Szmuk, I.: Male toads in pregnancy tests. *Lancet*, 2:218, 1949.
2. Bodine, C. D.; Kline, R. F.; Rogers, R. A.; Smith, D. C., and Tinker, F. X. P.: The male frog (*Rana pipiens*) as a test animal for determining the level of urinary chorionic gonadotropin during pregnancy. *Am. J. Obst. & Gynec.*, 59: 649, 1950.
3. Brody, H.: The use of the male leopard frog (*Rana pipiens*) as a pregnancy test animal. *Am. J. Obst. & Gynec.*, 57:581, 1949.
4. Cutler, J. N.: An appraisal of the male North American frog (*Rana pipiens*) pregnancy test with suggested modification of the original technique. *J. Lab. & Clin. Med.*, 34:554, 1949.
5. Farris, E. J.: A twenty-four hour rat test for the diagnosis of early pregnancy and as an aid in predicting abortion. *Fertility & Sterility*, 1:76, 1950.
6. Frazer, J. F. D., and Wohlzagen, F. X.: Male toad pregnancy test. *Lancet*, 2:134, 1949.
7. Frazer, J. F. D., and Wohlzagen, F. X.: Use of the male British toad as a pregnancy test animal. *Brit. M. J.*, (Aug. 5) 1950.
8. Galli Mainini, C.: Pregnancy test using male batrachia. *J.A.M.A.*, 138:121, 1948.

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ACUTE YELLOW ATROPHY OF THE LIVER FROM SH VIRUS TRANSMITTED BY A BLOOD BANK

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THE condition formerly referred to as acute catarrhal jaundice was clarified during the war as a virus disease which occurs in two closely similar forms: (1) the naturally occurring epidemic or sporadic hepatitis, and (2) the artificially produced serum hepatitis (commonly called homologous serum jaundice).⁴ The chief differences in the two forms lie in the mode of transmission and the incubation period. Serum hepatitis is transmitted by parenteral injections of blood, plasma or biological products containing human serum, or by improperly sterilized syringes, needles or medications.^{7,8,9} The incubation period of sixty to 160 days is in marked contrast to the ten to forty day incubation period of sporadic or epidemic hepatitis. Tests with human volunteers have shown that specific immunity develops after infection and there is no cross protection between the two forms of the disease.^{3,5} These tests have also shown that as little as 0.01 c.c. of serum from a case of serum hepatitis contains sufficient SH virus to transmit the disease.⁴

Clinically and pathologically, serum hepatitis and sporadic or epidemic hepatitis are almost indistinguishable after the onset of the disease. There are two anatomical (or rather histological) types of infectious hepatitis: (1) the hepatocellular type, and (2) the periportal or cholangiolitic type.¹⁰ Both types occur equally from the sporadic and epidemic virus (IH virus) and from the serum virus (SH virus). In the hepatocellular type the dominant pathological change is a degeneration of the liver cells. Fulminating cases of infectious hepatitis are usually of this type and show extensive diffuse necrosis of the liver cells⁹—the picture of acute yellow atrophy of the liver. In the cholangiolitic type, described in detail by Watson and Hoffbauer,¹⁰ there is an intense inflammatory reaction around the bile ducts with intrahepatic biliary obstruction, and only transient involvement of the liver cells. Severe cases of this type progress to an hypertrophic (Hanots) or sometimes atrophic (Laennec's) biliary cirrhosis, with prolonged regurgitation jaundice.¹⁰

The combined results of a number of liver function tests gives an accurate differential diagnosis between the hepatocellular type of infectious hepatitis and extrahepatic biliary obstructive jaundice due to stones or carcinoma.⁴ However, in the pure cholangiolitic type of infectious hepatitis, the liver function tests may show only the picture of obstructive jaundice, and the differential from extrahepatic biliary obstruction can be made only by laparotomy in some cases.¹⁰ The decision to explore the extrahepatic biliary tract is of great importance since it is well known that surgery has a deleterious effect on infectious hepatitis.

A patient suffering from pulmonary tuberculosis developed a severe serum hepatitis with a combination of the cholangiolitic and hepatocellular types of pathological change.

Case Report

A. B. J., a man, aged twenty-seven, was admitted to the Mineral Springs Sanatorium, Cannon Falls, Minn., December 21, 1943, because of hemoptysis on December 15, 1943. He had had a moderately productive cough and had lost 10 pounds in weight in the past six months. Chest films showed soft infiltration between the first and third ribs on the right. The diagnosis was moderately advanced pulmonary tuberculosis, active. Cultures and guinea pig inoculation of gastric washings were positive. The patient left the sanatorium against advice on December 24, 1943, and refused to return even when he was told of the positive cultures. He continued to live with his wife and two small children and resumed his regular occupation.

The patient was admitted the second time to Mineral Springs Sanatorium on November 24, 1945. Chest x-ray showed soft infiltration had spread to most of the right lung and to the fourth interspace on the left. There was cavitation in the apex of the right lung. He was treated with pneumothorax, pneumolysis, phrenic crush and later cleothorax and pneumoperitoneum. He left the sanatorium a second time against advice on April 1, 1947. Within a few months he was back at full-time work. He did continue pneumoperitoneum refills.

The patient was admitted the third time to Mineral Springs Sanatorium on August 3, 1949, after having more hemoptysis. Sputum smears were positive and x-ray showed further progression in the right upper lobe with increase in the cavitation. He was transferred to Colonial Hospital in Rochester, Minnesota, where a right upper and middle lobectomy was performed on September 23, 1949. Four 500 c.c. bottles of blood from the

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blood bank were given during the operation. One additional pint of blood from the bank was given on September 24, 1949. No plasma or human serum products were given. He was treated also with streptomycin and para-aminosalicylic acid. A one-stage thoracoplasty was performed at Mineral Springs Sanatorium on October 12, 1949. He received one pint of blood during the operation, another on October 14, and another on November 15. Recovery from the operation was rapid and uneventful. He left the sanatorium against advice for the third time on December 5, 1949.

The patient (now aged thirty-three) was admitted to St. John's Hospital in Red Wing, Minnesota, on December 15, 1949, with complaints of nausea, vomiting and jaundice. He reported he noticed nausea first on November 25, 1949, but did not vomit. He had anorexia and occasional nausea between November 25 and December 10. On December 10 he had nausea and vomiting, and he noted a slight yellow color to the skin. On December 12 he noted clay-colored stools and dark urine. He had no pain and no chills or fever.

Physical examination on admission showed a thin, white male with moderately severe jaundice. Temperature, pulse, respiration and blood pressure were normal. Examination of the chest showed a partial collapse of the right chest with relative dullness and absent breath sounds in the apex. The chest was otherwise negative. The heart was normal in size and rhythm, but was shifted slightly to the right. The liver was palpable two fingers below the costal margin in the mid-clavicular line and was firm and non-tender. It did not move with respiration due to right phrenicotomy. The remainder of the physical examination was unremarkable.

Laboratory examinations are shown in Table I. Diagnostic duodenal drainage showed no bile in the first specimen, 1+ test for bile thirty minutes after one ounce of magnesium sulfate and 2+ test for bile thirty minutes after a second ounce of magnesium sulfate.

Clinical Course.—From the onset of definite symptoms (December 10) until death (January 16) the patient had completely acholic stools. He was treated with a high protein high carbohydrate diet (P 100, C 250, F 80), 1 to 2 liters of 10 per cent glucose intravenously daily, therapeutic vitamins orally and intravenously, methionine 4 grams daily, crude liver extract 2 to 4 c.c. intramuscularly daily, crude liver intravenously later, vitamin K parenterally, and choline chloride orally for a short time.

For the first two weeks in the hospital treatment was effectively administered, and his general condition was only a little worse than it was at the onset. He took the full diet and medications and in spite of frequent nausea he did not vomit. He was even able to go home to be with his family on Christmas day. From December 28 on, his course was more rapidly downhill, and severe anorexia, nausea, and occasional vomiting made diet and oral medication much less adequate. Jaundice became progressively more intense and anorexia became so severe the patient had to literally force the food down. At no time was the temperature above 98.6° and there was no pruritis. The liver regressed in size until the edge was above the rib margin. Hepatic fetor developed and in-

TABLE I. RESULTS OF LABORATORY EXAMINATIONS

	Normal	7	13	Day of Disease					31	38
				14	21	27				
Hemoglobin	14.5 gm.	13.2							11.2	
Urinalysis		neg.							neg.	
Icteric index	4-6 u.		150	224	277					
Cephalin flocculation	0	3+			3+				100	
Thymol turbidity	0-4 u.		20		76					
Prothrombin %	100		67							
Plasma protein	6.4-8%			6						
A/G ratio	1.5-2.0			1.14						
Quantitative fecal urobilinogen	100-150 mg.						3.5			
Bleeding time	1-3 min.								1.5	
Coagulation time	1-7 min.								3.5	

creased progressively. With the fecal urobilinogen and clinical evidence of complete biliary obstruction persisting after thirty days, faith in our own convictions waned and exploratory laparotomy was performed on January 10, 1950, for a possible complicating extrahepatic biliary obstruction. The extrahepatic biliary passages were collapsed but patent. The liver was slightly smaller than normal and showed a blotchy yellow nutmeg appearance. A biopsy was reported by the hospital pathologist, Dr. Noble, as follows: "Section of biopsy of the liver shows the liver lobules to be encompassed by thin bands of fibrous connective tissue. There is a dense peri-cholangitic reaction. Conclusions: cirrhosis of the liver." For the next four days the patient seemed to improve slightly. On January 15, 1950, he became severely agitated, lost contact with reality and later in the day lapsed into a comatose state. The coma persisted and on January 16, 1950, he died.

Autopsy.—General Observations: The body is that of a thirty-three-year-old, thin, white, male, about 70 inches long and weighing about 120 pounds. The skin has a deep yellowish brown color. There are recent scars of the right rib resection and right upper quadrant laparotomy, and old scars from right phrenicotomy and multiple pneumoperitoneum punctures. The peritoneal cavity contains only about 200 c.c. of clear yellow fluid. All organs and relationships are normal. The liver edge is about two fingers above the costal margin. The thoracic cavity shows about 100 c.c. of yellow clear fluid in each pleural space. The right chest cavity is collapsed in the upper portion and the upper five ribs have been removed. The right parietal pleura is very thick in the apex. Cut section measures 1 centimeter and consists of thick fibrous tissue with diffuse calcium deposits. Only the right lower lobe remains and this has assumed a semi-conical shape but does not ascend to the apex of the thoracic cavity. The heart is shifted slightly to the right. The left lung relationships are normal. There are many scattered adhesions in the apex and posteriorly.

Organs: Cut sections of the left lung show only dependent posterior congestion. The right lower lobe is a dark, dirty brown color and has a solid consistency. Crepitation is moderately reduced. Cut section shows marked diffuse fibrosis. A small amount of serous mucoid secretion is present in the cut section. No nodules or caseation necrosis is seen. The right hilar nodes are surgically absent. The left hilar and mediastinal nodes are enlarged and fibrous in character.

The liver is about half normal size and is quite firm. The surface is smooth and there are no adhesions. The

organ is deeply yellow in color and shows an exaggerated mottling or nutmeg appearance. Cut section shows extensive fibrosis and complete distortion of the normal architecture with a marked nutmeg appearance.

The gall bladder is thin walled and contains a small

Comment

At the time of onset this case was similar to most cases of serum hepatitis with combined cholangiolitic and hepatocellular involvement. The

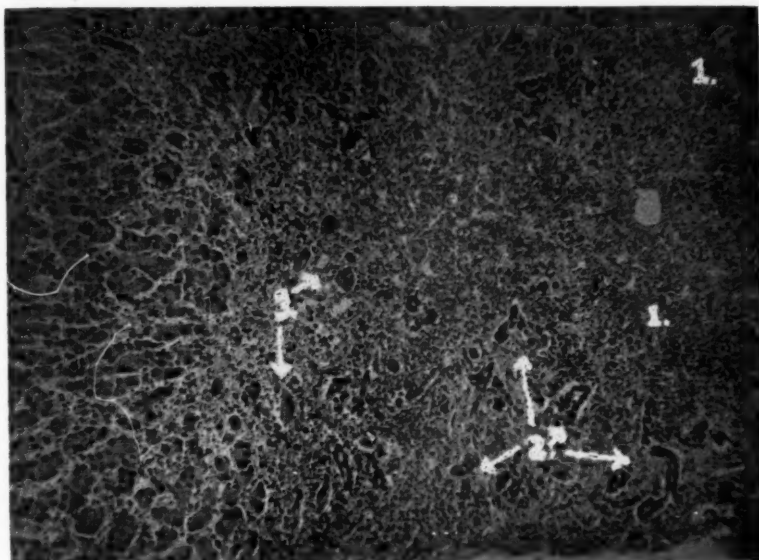


Fig. 1. Photomicrograph of the periphery of a typical liver lobule. Note (1) the intense pericholangiolitic inflammatory reaction with round cell infiltration and fibroblastic proliferation, (2) the marked regeneration of bile ducts, and (3) the liver cell necrosis and large multinucleated liver cell regeneration.

amount of thick greenish brown bile. The bile ducts are intact and are patent throughout. The ampulla of Vater is completely normal in appearance.

The remainder of the organs are normal or show the usual postmortem changes.

The gross anatomical diagnoses are: (1) acute yellow atrophy of the liver, (2) diffuse pulmonary fibrosis of the remaining right lower lobe.

Microscopic Pathological Changes: The significant microscopic pathological changes are limited to the right lung and the liver. The lower lobe of the right lung shows many small tuberculous lesions with the typical microscopic characteristics. No cavitation is present.

The liver shows extensive destruction of the normal architecture (Fig. 1). There is a great deal of degeneration and frank necrosis of the liver cords. In many areas, however, there are multiple foci of large multinucleated regenerating liver cells. There is an intense pericholangiolitic inflammatory reaction with fibrosis and round cell infiltration. The bile ducts are patent and the epithelium shows little change. Many minute regenerating bile ducts are present indicating a considerable attempt at regeneration of the intrahepatic biliary system. Only occasional biliary thrombi are seen.

The microscopic diagnoses are: (1) subacute hepatitis with necrosis of liver cells and regeneration of bile ducts, (2) caseous pulmonary tuberculosis.

incubation period, if figured from the first five transfusions until the onset of definite symptoms, was seventy-nine days. If it is figured from the second group of two transfusions it was fifty-seven to fifty-nine days. Since the patient received no plasma or serum preparations and the mode of onset and clinical manifestation were typical of serum hepatitis, it was concluded that he undoubtedly received the SH virus from one of the blood donors. All the donors had denied a history of jaundice when the blood was donated. It is therefore probable that one of the donors either was in the incubation period of serum hepatitis or was a chronic carrier of the virus after a non-icteric serum hepatitis infection. Until tests are devised to detect the virus in the blood of persons who are otherwise well, this type of accidental transmission of serum hepatitis is unavoidable. Current methods of sterilizing plasma with 2537 Å unit ultraviolet irradiation cannot be applied to whole blood.

For the first three weeks of illness the cholangiolitic type reaction was dominant with complete

intrahepatic biliary obstruction and only moderate hepatic cellular involvement. This was indicated by the clinical course, the return of prothrombin function to normal and the liver biopsy showing the intense periportal reaction. From then on, however, the course was that of severe hepatic necrosis and the patient had a typical hepatic death.

This case represents a combination of the two histological types of infectious hepatitis—first, the intense cholangiolitic reaction with persistent complete intrahepatic biliary obstruction, and second, the hepatocellular degeneration with extensive necrosis, atrophy, hepatic fetor and hepatic death.

Summary

A case of serum hepatitis transmitted by a blood bank is presented. The patient showed a predominant cholangiolitic hepatitis with complete intrahepatic biliary obstruction and early biliary cirrhosis, and then developed marked hepatocellular degeneration and died with the characteristics of acute yellow atrophy of the liver.

The authors are indebted to Dr. J. R. McDonald of the Mayo Clinic for the microscopic pathological studies and for the photomicrograph of the liver.

References

1. Broun, G. O.: Treatment of hepatic cirrhosis. *Postgrad. Med.*, 4:203-207, (Sept.) 1948.
2. Havens, W. J., Jr.: Experiment in cross immunity between infectious hepatitis and homologous serum jaundice. *Proc. Soc. Exper. Biol. & Med.*, 59:148-150, 1945.
3. Havens, W. P., Jr.: The etiology of infectious hepatitis. *J.A.M.A.*, 134:653-655, 1947.
4. Havens, W. P., Jr., and Paul, J. R.: *Viral and rickettsial Infections of Man*. (Edited by T. M. Rivers) Pp. 269-283. Philadelphia: J. B. Lippincott Co., 1948.
5. Neefe, J. R.; Gellis, S. S., and Stokes, J., Jr.: Homologous serum hepatitis and infectious (epidemic) hepatitis; studies in volunteers bearing on immunological and other characteristics of etiologic agents. *Am. J. Med.*, 1:3-22, 1946.
6. Robinson, J. W.; Twaddell, D. N., and Havens, W. P., Jr.: Homologous serum hepatitis. *Ann. Int. Med.*, 32:1019-1027, (June) 1950.
7. Scheinberg, I. H.; Kinney, T. D., and Janeway, C. A.: Homologous serum jaundice; a problem in the operation of blood banks. *J.A.M.A.*, 134:841-848, (July 5) 1947.
8. Stokes, J., Jr., and Neefe, J. R.: The prevention and alteration of infectious hepatitis by gamma globulin. *J.A.M.A.*, 127:144-146, (Jan. 20) 1945.
9. Turner, R. H.; Snavely, J. R.; Grossman, E. B.; Buchanan, R. N., and Foster, S. O.: Some clinical studies of acute hepatitis occurring in soldiers after inoculation with yellow fever vaccine, with especial consideration of severe attacks. *Ann. Int. Med.*, 20:193-218, (Feb.) 1944.
10. Watson, C. J., and Hoffbauer, F. W.: The problem of prolonged hepatitis with particular reference to the cholangiolitic type and to the development of cholangiolitic cirrhosis of the liver. *Ann. Int. Med.*, 25:195-227, (Aug.) 1946.

EMERGENCIES IN THE NEWBORN PERIOD

(Continued from Page 1207)

and hyperthermia but no shock until a few minutes before death. Massive adrenal hemorrhage was the only positive finding at postmortem examination.

Convulsions may also be evidence of a kernicterus developing in an infant with erythroblastosis fetalis. Convulsions with evidence of hydrocephalus or microcephalus may suggest toxoplasmosis.

There are many other conditions during this period of life which require immediate action: atresias of the bowel, a large omphalocele, imperforate anus and other anomalies requiring surgical treatment should be operated upon as soon as possible. Surgical procedures are best tolerated in the newborn if done within the first twelve to

eighteen hours after birth. Birth paralyses, congenital dislocation of the hip, clubfeet and metatarsus varus of severe degree will all benefit by treatment instituted during the newborn period. It is not within the scope of this paper to discuss vomiting, diarrhea, infections, abnormalities of the blood and other illnesses of the newborn period.

Summary

Emergencies arising during the newborn period and manifested by cyanosis or abnormal respirations, or both, and those associated with convulsions are discussed in respect to differential diagnosis and treatment.

PRACTICAL CONSIDERATIONS IN THE DIAGNOSIS AND TREATMENT OF ECTOPIC PREGNANCY

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ECTOPIC pregnancy is a gestation in which the fertilized ovum implants itself in some other site than the usual endometrium. The incidence is about four ectopic pregnancies for every 1,000 live births. An ectopic pregnancy, by definition, may occur in a tube, ovary, abdomen, rudimentary uterine horn or endometriotic pocket, and in a tube after hysterectomy.

There are many conjectures as to the cause of ectopic pregnancy. It is noteworthy, however, that in the majority of cases there is a history of sterility and previous pelvic infection involving pelvic operation or appendectomy.

Diagnosis

A woman in the childbearing age who after an anomalous menstrual period has a sudden sharp pain in the lower abdomen, often accompanied by a feeling of fainting, and who on examination has a tender cervix and a tender adnexal mass, most often presents the picture of an ectopic pregnancy rupturing at its commonest site, the outer third of the tube.

Unfortunately the symptoms of ectopic pregnancy vary with the site of implantation, and the classical picture may have all the fuzziness of modern art and be as difficult of interpretation as a surrealist painting. In a series of 1732 collected cases, only 63 per cent were diagnosed correctly preoperatively.

With the classical picture as a background we might attempt to consider the diagnosis of ectopic pregnancy of three types: (1) the explosive type, (2) the unruptured ectopic, and (3) the atypical ectopic.

The Explosive Type.—Occasionally the first intimation of an ectopic pregnancy is massive intra-abdominal hemorrhage, which comes on so suddenly that the site of hemorrhage cannot be determined. Generalized abdominal tenderness, rigidity, rebound tenderness, increasing shock, may simulate a perforated ulcer, mesenteric thrombosis, splenic rupture. Clues to the site of hemorrhage may be the gradual development of shoul-

der-strap pain and the bulging cul-de-sac. In general, the nearer the uterus, the more explosive the rupture of ectopic pregnancy. An interstitial pregnancy may rupture with fatal massive hemorrhage even before a missed or anomalous period.

First, one should treat the shock. Glucose, saline, plasma and blood may all be used intravenously in arms and legs. As soon as the patient is recovering from shock, then emergency abdominal operation preferably under local infiltration anesthesia supplemented when necessary by pentothal, is indicated to find and ligate the source of the hemorrhage.

Unruptured Ectopic Pregnancy.—About 10 per cent of ectopic tubal pregnancies are diagnosed before rupture. The following signs and symptoms are suggestive of unruptured ectopic tubal pregnancy. A woman in childbearing age who has been sterile for some years misses a period and begins to have nausea and engorging breasts. On pelvic examination the uterus is found softened and enlarged and a pelvic mass is found in one adnexa. The Friedman test is positive. Culdoscopy shows enlarged engorged uterine tube.

There is no expectant treatment for unruptured ectopic pregnancy.

Atypical Ectopic Pregnancy.—All too frequently the correct interpretation of the symptoms and signs requires all one's diagnostic acumen and hunch. It has been estimated that 15 to 30 per cent of ectopic pregnancies are so atypical in symptoms and signs that a correct diagnosis is not made preoperatively. The different sites of implantation, the varying amounts of intra-abdominal bleeding, survival or death of the fetus—all tend to produce bizarre findings which, in such atypical cases, may persist or may vary over days, weeks or months.

I. Symptoms

1. Bleeding.—Uterine bleeding follows a few days after an early period and recurs with crampy lower abdominal pains.

2. Pain.—Lower abdominal unilateral pain, usually crampy, is often the first complaint. Sometimes however, the pain shifts to various quadrants with varying posi-

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ECTOPIC PREGNANCY—McKENZIE

tions of the patient and may simulate gall-bladder colic, perforated ulcer pain, or produce the inspiratory "grunt" of basal pneumonia.

II. Signs

1. Ileus.—Slight to moderate ileus is almost invariably present and is frequently overlooked.

2. Abdomen.—Abdominal tenderness, usually in the lower abdomen, varies with the amount and activity of bleeding and the position of the patient.

3. Pelvic Examination.—When present, the excruciating tenderness of the cervix is diagnostic, but the rupture may be so old that little tenderness is elicited. A unilateral tender mass may be found but the enlarged corpus luteum of early pregnancy—tingling breasts, nausea, frequency—suggest gestation but do not locate it.

	<i>Abortion</i>	<i>Ectopic Pregnancy</i>
Onset of pain:	Gradual	Sudden, often with fainting
Site:	Generalized lower abdominal pain	Severe and unilateral
Bleeding:	Profuse and external	Slight external
Shock:	Proportional to blood loss	Out of proportion to external bleeding
	<i>Appendicitis</i>	<i>Ectopic Pregnancy</i>
Onset:	Sudden	Nausea and vomiting, if present, have been for sometime and are typical of pregnancy
Other signs of pregnancy:	None	Present
Tenderness:	At McBurney's point	Lower abdomen
Pelvic findings:	Minimal	Tenderness

III. Other Diagnostic Aids

Temperature, pulse, blood pressure, white blood count and sedimentation rate may be of value but are all equivocal in atypical ectopic pregnancy.

Pregnancy tests, if positive, are helpful.

Spectroscopic demonstration of hematin in the patient's serum denotes blood in a serous cavity.

Endometrial biopsy, or curettage, which reveals chorionic villi, shows that the pregnancy is or was intra-uterine; but when the fetus in an extra-uterine pregnancy dies, the endometrium may show almost any picture.

Cul-de-sac puncture which reveals free blood is diagnostic, and usually, only confirmatory.

Culdoscopy, a relatively simple procedure, is of real value in the diagnosis of atypical ectopic pregnancy, enabling one to visualize the tubes, ovaries, and blood if present.

Differential Diagnosis

In arriving at a diagnosis of ectopic pregnancy one should consider the following: (1) abortion, in progress or incomplete, (2) salpingitis, (3) appendicitis, (4) ruptured or bleeding corpus luteum cyst or ovarian follicle, (5) ovarian cyst with torsion of pedicle, (6) endometriosis, (7) gall-bladder colic, (8) pleurisy, (9) perforated peptic ulcer, and (10) any abdominal emergency.

Since "commonest things are still commonest," and abortion results in one out of every four or five conceptions, one must consider abortion as the most likely probability.

Points in Treatment

It is advisable not to operate until shock is under control or is being controlled.

Local anesthesia, supplemented with pentothal if necessary, is usually preferable.

The whole tube should be removed, for stumps of tubes tend to be the sites of recurrent ectopics.

Auto-transfusion using the blood found in the abdomen is not very feasible. Its use should be attempted when no other blood is available.

Concomitant operations, such as appendectomy, are usually desirable, depending, however, on the condition of the patient. Such additional surgery apparently does not add to morbidity or mortality.

COMMON INJURIES OF THE KNEE JOINT

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WATSON-JONES made the statement that the most important single factor in the successful treatment of all knee injuries is the maintenance of good quadriceps tone and power. In addition to this might be added the paramount importance of early and accurate diagnosis. If the exact nature and extent of the injury is ascertained, it is usually possible to apply rational treatment at an early time. The aim of treatment of all injuries to the knee not involving fractures is to avoid a weak and unstable knee. The function of stability is that of the four principal ligaments of the joint plus the quadriceps mechanism.

The quadriceps mechanism consists of the four anterior muscles of the thigh converging into the patella and through an aponeurosis on either side into the patellar tendon. It not only provides the power of extension for the knee but also is an important factor in the stability while in active motion and weight bearing.

The four principal ligaments from the functional standpoint are the two collateral ligaments, medial and lateral, and the anterior and posterior cruciate ligaments. The collateral ligaments prevent abduction and adduction of the knee and are most efficient when the knee is fully extended. Testing for the continuity of these ligaments should be done only with the knee fully extended. The anterior cruciate ligament prevents forward displacement of the tibia on the femur, while the posterior cruciate ligament prevents backward displacement of the tibia. These functions should be tested with the knee flexed to 90 degrees. The first procedure which should be done when confronted with the problem of diagnosis in cases of acute injury of the knee is to secure good anteroposterior and lateral roentgenograms of the knee joint. Special views such as oblique, intercondylar notch, or special patellar views may be necessary to rule out fractures absolutely. If a fracture is not present, it may not be possible to determine for the first twenty-four hours the exact extent of the injury to the joint.¹ If there is any doubt, it seems the best policy to put the patient to bed with

the affected leg elevated and to apply ice to the knee joint to reduce as much as possible the edema and hemorrhage. It is thus essential to test carefully all the ligamentous functions which have been described. If there is real doubt because of a low pain threshold or other reasons, it may be necessary to anesthetize the patient to determine whether the ligaments are intact.

A contusion, with or without traumatic synovitis and hemarthrosis, is the least serious of injuries to the joint. If no swelling occurs and if ligamentous stability is normal, the injury is minimal, but even in this case the patient must be observed closely and the preservation of good quadriceps tone and power must be maintained by exercise to ensure prompt recovery and avoidance of later disability due to instability.

If swelling of the joint occurs within an hour, hemorrhage into the joint or surrounding tissues is present. If the fluid is intra-articular, it will be possible to palpate a fluid wave. If blood is present in the joint, it should be aspirated and a tight pressure dressing should be applied to prevent further hemorrhage.

On the other hand, if swelling does not occur until several hours after the injury, the fluid is an effusion due to traumatic synovitis. In this case, aspiration should not be carried out, but the joint should be wrapped with a pressure dressing and quadriceps exercises should be begun immediately.

More serious injuries to the knee joint, excluding fractures, involve the collateral or cruciate ligaments and the menisci or semilunar cartilages. Perhaps the most frequently injured ligament is the medial collateral ligament. This ligament is injured by a blow on the lateral side of the knee or by any other force which tends to abduct the joint.⁴ Football is the sport most prolific in the production of such injuries. The severity of the ligamentous damage varies from a simple sprain, with tearing of a few fibers but with normal lateral stability, to complete rupture of the ligament with excessive lateral mobility of the joint. If a sprain is diagnosed, the treatment should be conservative. Protection of the ligament by a tight bandage and by raising of the

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COMMON INJURIES OF THE KNEE JOINT—HENDERSON

inner border of the heel is considered adequate. The importance of early institution of quadriceps and other nonweight-bearing exercises cannot be overstressed.

If there is a complete rupture of the ligament, either plaster immobilization or early operation with surgical suture of the ruptured ligament and inspection of other joint structures should be used. Watson-Jones favored a two or three months' trial of conservative therapy, but most American authors favor early operation for several reasons. One of these is that repair of the ligament is much easier soon after injury. Secondly, it is possible to inspect the joint to find torn menisci and remove them if indicated.

The same principles of treatment apply to injuries to the lateral collateral ligament and to those of the cruciate ligaments. If fracture of the tibial spine occurs with clinical evidence of rupture of the anterior cruciate ligament, an open reduction should be performed. This injury should be regarded as an avulsion of the anterior cruciate ligament at its attachment to the tibia.

Whereas injuries of the collateral ligament occur by application of lateral force on the extended knee, injuries of the menisci occur when weight-bearing rotation forces are applied to the flexed knee, as when a halfback pivots sharply on one leg to avoid a tackler. Medial meniscus tears are several times commoner than those of the lateral meniscus, but the latter are not as rare as had been the common conception several years ago.^{2,3} There are two types of meniscus tears. The first is the longitudinal or "bucket handle" tear, and the second is the transverse tear in the posterior horn. The classic sign of the "bucket handle" tear is locking, or inability to extend the knee fully. In addition, there is usually swelling of the knee with pain over the involved meniscus.

There may also be a history of sudden "unlocking" with or without manipulation. If it is the first locking, conservative treatment by manipulation, traction or splinting with active quadriceps exercises is in order. However, if repeated locking occurs, the offending meniscus should be excised surgically. The often held misconception that removal of menisci is often followed by a stiff knee is, fortunately, not true, especially if proper attention is paid to exercising the quadriceps mechanism.

Posterior horn tears of either meniscus are more difficult to evaluate. There is no locking but only an uneasy feeling of instability and fear that the knee might lock. The MacMurray sign, that is, the elicitation of a click by rotation of the tibia in the extreme flexed position, is the only reliable sign, but is not always present. Surgical excision of the meniscus is the treatment of choice.

In conclusion, it may be stated that the common ligamentous injuries of the knee joint should be treated according to the structure affected and according to the seriousness of the injury. The most important single factor and the common denominator in the treatment of all these injuries is the active, vigorous exercise of the quadriceps muscle. If this muscle is kept strong, a grave ligamentous instability may be entirely asymptomatic.

References

1. Barnes, Roland: Injuries of knee. *Practitioner*, 160:183-190, (Mar.) 1948.
2. Coventry, M. B.: Internal derangement of knee. *Minnesota Med.*, 30:42, (Jan.) 1947.
3. Lipscomb, P. R., and DeForest, R. E.: Internal derangements of the knee. *Collect. Papers Mayo Clin. & Mayo Found.*, 38:508-512, 1946.
4. Quigley, T. B.: The management of knee injuries incurred in college football. *Surg., Gynec. & Obst.*, 87:569-575, (Nov.) 1948.
5. Watson-Jones, Reginald: Injuries of the knee. In: *Fractures and Other Bone and Joint Injuries*. Ed. 2. chapt. 30, pp. 524-565. Baltimore: The Williams and Wilkins Company, 1949.
9. Galli Mainini, C.: Pregnancy test using male toad. *J. Clin. Endocrinol.*, 7:653, 1947.
10. Gardner, H. L., and Harris, N. B.: Use of the male frog (*Rana pipiens*) in a biological pregnancy test. *Am. J. Obst. & Gynec.*, 59:350, 1950.
11. Haines, M.: The male toad—test for pregnancy. *Lancet* 2: 923, 1948.
12. Klopfer, H., and Frank, H.: The use of English male toads in pregnancy tests. *Lancet*, 2:9, 1949.
13. Maier, E. C.: The use of the male *Rana pipiens* frog in the diagnosis of pregnancy and the differential diagnosis of abortions. *West. J. Surg.*, 57:558, 1949.
14. McCallin, P. F., and Whitehead, R. W.: A study of native species of male toads as test animals in the diagnosis of early human pregnancy. *Am. J. Obst. & Gynec.*, 59:345, 1950.
15. Miller, D. F., and Wiltberger, P. B.: Some peculiarities of the male frog test for early pregnancy. *Ohio J. Sc.*, 48:89, 1948.
16. Robbins, S. L., and Parker, F., Jr.: The reliability of the male North American frog (*Rana pipiens*) in the diagnosis of pregnancy. *New England J. Med.*, 241:12, 1949.
17. Robbins, S. L., and Parker, F., Jr.: Use of male North American frog (*Rana pipiens*) in diagnosis of pregnancy. *Endocrinology*, 42:237, 1948.
18. Sharnoff, J. G., and Zaino, E. C.: An evaluation of the male frog pregnancy test. *Am. J. Obst. & Gynec.*, 59:653, 1950.
19. Soucy, L. B.: The use of ordinary toads and frogs for pregnancy tests. *Am. J. M. Technol.*, 15:184, 1949.
20. Wiltberger, P. B., and Miller, D. F.: Male frog, *Rana pipiens*, as new test animal for early pregnancy. *Science*, 107:198, 1948.

THE RANA PIPIENS FROG TEST FOR PREGNANCY

(Continued from Page 1210)

History of Medicine In Minnesota

MEDICINE AND ITS PRACTITIONERS IN OLMSTED COUNTY PRIOR TO 1900

NORA H. GUTHREY

Rochester, Minnesota

(Continued from the November Issue)

M. Holterman, of Rock Dell, Olmsted County, was listed as a physician in the 1878-1879 edition of the *Minnesota State Gazetteer and Business Directory*. Other information has not been available. It is possible, but not proved, that this practitioner was the Dr. N. S. Holterman, a Norwegian physician, who between 1874 and 1878 was in Kasson, Dodge County.

Joel H. Horton, an eclectic physician, practiced medicine in Rochester, Olmsted County, eight years or more beginning in 1881.

Born in Portage County, Ohio, on April 29, 1830, Joel H. Horton received his early education at Hiram Academy, Hiram, Ohio, and in 1852 took his degree of doctor of medicine at the Eclectic Medical College of Rochester, New York. In the next thirty years he practiced in various places, first in Wooster, Ohio, later in Michigan, in Iowa City, Iowa, and in Hiram, Ohio. From Ohio he came to Rochester, Minnesota, in the summer of 1881 and shortly afterward entered partnership with Dr. E. T. Sedgwick, also an eclectic, with offices in the Olds and Fishback Block on Broadway; Dr. Sedgwick had come to Rochester late in 1879 from Zumbrota. When this association ended, after three months, Dr. Horton took an office in the Heaney Block. In November, 1882, local newspapers stated that his daughter, Frances D. Horton, had come from Springfield, Ohio, to keep house for him at his residence on College Hill; and, a year or two later that Miss Horton had been married in Ohio to Harry Corey, of Fremont, that state.

Dr. Horton was an active member of the Minnesota State Eclectic Medical Society, attending meetings and presenting papers, notably one on eclecticism in medicine, at the fifteenth annual session of the society in June, 1883, at Owatonna; at that meeting he was elected a member of the board of censors. Under the medical practice act of 1883 he received Minnesota state license No. 693 (E), dated December 31, 1883, which he filed in Olmsted County on January 12, 1884.

This practitioner's name appeared occasionally in Rochester newspapers and in certain county records into 1890 and in successive issues of a state gazetteer and business directory from 1884 through 1891. It was not included in the first issue (1906) of the official directory of the American Medical Association nor thereafter.

Dr. Hunt was early in Pleasant Grove, Olmsted County. On March 6, 1869, the *Federal Union* of Rochester, in commenting on the prosperous village of Pleasant Grove, in the township of that name, and its fine class of people, said in part, "For instance, where will you find a more accomplished gentleman than Capt. Mills, Dr. Bardwell and the venerable and the good Dr. Hunt?" Dr. Hunt's name appeared in Mervin's *Business Directory* of 1869-1870, in relation to

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Pleasant Grove, and an early settler of Rochester who is now very old has expressed the belief that Dr. Hunt at some time lived in Stewartville, seven miles from Pleasant Grove.

A. T. Hyde, "doctor" perhaps by courtesy, one in a large category throughout the country, was in Rochester, Minnesota, a few years in the late eighteen sixties. Sometimes described as botanist and chemist, he had his headquarters in the grocery store of S. H. Daniels, with whom he was for a time in partnership in the manufacture of Hyde's Gopher State Bitters. The *Rochester Post* of August 15, 1868, quoted the following comment from the *Chicago Republican*: "Rochester is meeting Pittsburgh half way and a bitter contest is on between the bitters produced in the two places. Hostetter has had the field in Chicago but Hyde's Gopher State Bitters are supplanting them. The inventor of these bitters, an experienced botanist, claims to have effected a combination of roots and herbs from western prairies that contain medicinal properties. It has recently been patented and is now manufactured by the laboratory of Daniels and Co. at Rochester. It is meeting with large sale in Minnesota and is gradually working its way into adjacent states. The bitters are highly recommended by those who have tried them." A few months later a grateful patient presented an especially engraved medal to Dr. Hyde as a token of his appreciation of the medical worth of the celebrated bitters; not long after that Dr. Hyde won a silver medal in a bitters competition. In November, 1869, it was announced that S. H. Daniels had purchased the interest of Dr. A. T. Hyde in the late firm of Daniels and Co. and would continue the drug and grocery business.

W. A. Hyde was in Rochester, Olmsted County, probably about three years. Through the summer and autumn of 1863 he announced himself in the local newspapers as physician and surgeon, residence with W. H. Mitchell, opposite the Stevens House, and office over the Union Drug Store (O. W. Anderson and A. F. Childs, proprietors), on Third Street. He asked a fair share of patronage, "having had ten years experience in the practice of his profession, and spent the last year as surgeon in the United States Service, in the *Land of Dixie*." In December, 1863 Dr. Hyde was appointed by the city council to take care of a smallpox patient, who was isolated in a disused log house on the edge of the city. Later it appeared that Dr. Hyde protested that the house was cold and unsuitable and he consequently was absolved of criticism when the patient died and was said to have frozen to death. For many weeks an acrimonious exchange, mentioned in the foregoing narrative, was carried on between newspapers, editors in near-by counties stressing various unpleasant points. Ultimately it became clear that the controversy arose primarily from political differences among editors.

In January, 1864, Dr. Hyde joined Dr. W. W. Mayo in a partnership that lasted less than four months. In June of that year Dr. Hyde was describing himself as an eclectic physician and surgeon, with office and residence upstairs on Broadway, opposite Dr. Cross. In the same month he was appointed city physician, to serve under the council until May 1, 1865.

In September, 1865, stating that he was about to cease the practice of medicine, Dr. Hyde gave "fair notice" and desired all those indebted to him for professional services to call and settle their accounts without delay, and shortly afterward he offered his house and lots for sale. His card continued to appear, nevertheless, and presently he was announced as practicing medicine in Eyota, where he remained some months. By December, 1865, he again was in Rochester and,

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indiscriminate as to school, was stating that he was a homeopathic physician and surgeon, office and residence on Broadway the first door north of Woodard and Ells Drugstore, his charges "no more than others practicing in this place. Old family medicine cases refilled or altered." In the same issue of the newspaper that carried this card appeared a paragraph, apparently from his hand, extolling the merits of homeopathy.

After July, 1866, although this practitioner may still have been in Rochester, notes about him did not appear in the press. Considerable detail regarding him has been given here because he seems to have been one of a numerous class, peculiar to the time, in claims of experience and abilities, and in changes of location and professed methods of practice.

The *Rochester Post* of July 7, 1893, in an item presumably authorized, stated that **Dr. Jackman**, of Jacksonville, Illinois, had accepted a position on the corps of assistant physicians at the Rochester State Hospital and that Dr. Jackman and Dr. Cyrus B. Eby, another new appointee, would complete the staff of assistant doctors. In none of the detailed published reports of the hospital nor in M. K. Amdur's "A Psychiatric Bulletin in Minnesota of Half a Century Ago" (*Minnesota Medicine*, September, 1942), in all of which are mentioned the physicians who would have been Dr. Jackman's immediate associates, does the name of Dr. Jackman appear.

Frank M. Johnson was in southern Minnesota as a general practitioner of medicine and surgery from 1883 into 1896 and in Olmsted County the last six years of that period.

Born at Fort Atkinson, Jefferson County, Wisconsin, on August 29, 1854, Frank M. Johnson when a child removed with his parents to Vernon County, that state, and there grew up. He attended the high school at Viroqua, took an academic course at Wayland Academy in 1876, and in the three years immediately following studied medicine with Dr. William Gott of Viroqua. Soon afterward he matriculated at Rush Medical College, from which he was graduated in 1882. The scene of his first practice, for a year and a half, was Ontario, Vernon County, Wisconsin, and there he was married to Ida De Lapp, a native of Ontario, born on December 2, 1860.

In September, 1883, Dr. and Mrs. Johnson and their infant son, Lee F. Johnson, removed to Brownsdale, Mower County, Minnesota. Dr. Johnson was licensed in Minnesota on December 31, 1883, receiving certificate No. 958 (R). From Brownsdale he transferred after two or three years to Grand Meadow, where he practiced and ran a drug store until January, 1890, when he settled in Byron, Olmsted County; Dr. Carlos R. Keyes had left Byron a few weeks earlier for Stillwater, where he was an assistant physician at the state prison.

The record in Byron is brief. Dr. Johnson and his family occupied the E. M. Gilbert residence after a few weeks at the Commercial House. A third child, a son, was born while they were in Byron, in December, 1890. Newspaper notes indicate that Mrs. Johnson had relatives in Plainview whom she visited; that the doctor was a Baptist and a prohibitionist, and that in June, 1890, he was nominated for coroner by the prohibition group.

Early in 1892 Dr. Johnson sold his practice to Dr. Amos L. Baker, who was coming to Byron from Pleasant Grove, and in April removed to Dover, where opportunity existed. Dr. A. W. Stinchfield, of Eyota, had joined the Drs. Mayo in Rochester, and Dr. Rollo C. Dugan, of Dover, had succeeded him in Eyota. Before entering the new field and occupying the former quarters of Dr. Hiram

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C. Bear who had left Dover two years previously, Dr. Johnson took a post-graduate medical course in Chicago. He early became a member of the Southern Minnesota Medical Association, which was founded in July, 1892. Occasional local items concerning him have been noted: that he brought a patient to Rochester for the opinion of the Mayos; that he assisted Dr. William A. Chamberlain, of St. Charles, in surgical operations on various occasions; that Dr. Horace H. Witherstine of Rochester, went to Dover to see a patient with Dr. Johnson; that the latter had been called to Stewartville.

In May, 1896, the Dover correspondent of the *Rochester Post* stated that Dr. F. M. Johnson and his family had departed for Springfield, Missouri, where they intended to make their home. That residence has been confirmed by the official directory of the American Medical Association, in successive issues of which from 1906 to 1931, inclusive, Dr. Johnson was listed as of Springfield.

C. H. Johnston might be classed as an itinerant practitioner, at least in the years when he first came to Rochester, Minnesota. In November, 1878, he ran notices in the local newspapers that he would be available for consultation at the Pierce House on certain days in November and December. There is evidence, however that later he had his home in Rochester. In February, 1880, the *Rochester Post*, mentioning Dr. Johnston as formerly of this city, reported the birth of a daughter to Dr. and Mrs. Johnston, who then were living near Dodger Center. And in May, 1880, the same paper stated that Dr. Johnston, "a formerly well-known practitioner in this city," had built up a large practice in Minneapolis and Wisconsin and had chosen Minneapolis as a convenient location from which to meet the numerous calls made upon him from all points.

Lewis Halsey Kelley (1808-1872) was from 1857 to 1863 a respected physician and surgeon in Rochester, Olmsted County, and from 1860 to the end of his life a representative newspaper owner, editor and publisher, first in Rochester and subsequently in Owatonna, Northfield and Faribault. After leaving Rochester he practiced medicine to only a limited extent.

Born in Ovid, Seneca County, New York, on October 13, 1808, Lewis H. Kelley received his academic and medical education in schools and colleges in the East, and was married, about 1840, to Angeline E. Rich, of Richford, New York. Data are not exact but it is known that for some time he practiced medicine at Marathon, New York, and that in the middle eighteen forties the family removed to Painesville, Lake County, Ohio; there in 1847 a son, one of the family of eight children, was born. In the early summer of 1857 Dr. Kelley came with his wife and children to Rochester from Painesville in the hope that the Minnesota climate would benefit Mrs. Kelley, who was in failing health; she died in Rochester a few years later.

On arrival in Rochester Dr. Kelley began the practice of his profession. A year later, when the settlement had been incorporated as a city, he began the construction of his Brick Block, the first brick building in Rochester, at the northeast corner of Broadway and College Streets (the latter now Fourth Street, S. W.). Broadway in that day extended two blocks north of the building site, to lose itself in a hazel thicket. Brick for the block was burned in Whitcomb's kiln in East Rochester and was hauled by ox teams across the Zumbro River ford a stone's throw away from the chosen corner. This building of two stories, 22 x 70 feet, stood out in the irregular cluster of small buildings, of logs or boards, that predated it and formed the nucleus of the city. It gave stimulus to civic pride and ambition in Rochester and was for some time the center of activities

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in the settlement. The Kelley living quarters were on the ground floor rear of the new building; the lower front space was rented to various local merchants in turn: William McCullough, and F. W. Andrews, and Upman and Poole, druggists. The upper space was rented to Messrs. David and Cyrene Blakely, who in 1859 founded Rochester's first newspaper, the *Rochester City Post*. To this home Dr. Kelley brought the first piano ever owned in Rochester, an instrument fascinating to the entire community and most of all to the Indians who thronged the valley and the settlement. When the eldest Kelley daughter (later Mrs. Walter Crocker) played on the "music box," the red men crowded at the windows to watch and listen, grunting their amazement and approval.

Dr. Kelley's professional and training experience are best stated by himself: When in December, 1860, he returned to Rochester after a long absence, he published in the *Rochester Republican* (which he had established that year) his professional card and the following notice:

Ho! Ye Afflicted! The undersigned would respectfully announce that on return from southern parts after nearly a year, he has made up his mind to locate permanently in the city of Rochester as a

PHYSICIAN AND SURGEON.

He would further state, for the information of the afflicted, that he received the degree of M. B. from the City of Albany, New York, while attending the Medical College of Geneva, New York, and subsequently received the Addendum Degree of his profession at the State Medical College of Indiana; is also a member of the New York State Medical Society and of the College of Physicians and Surgeons, Geneva, New York. And from his extensive practice in the healing art in the East, South, and West, for nearly twenty years, he has made himself acquainted with all the variations and grades of diseases, and feels that all confidences imposed on him in his profession will not be misplaced. He can be found at his office on the corner of Broadway and College Streets, between the hours of 9 a.m. and 3 p.m., on each day, for medical counsel.

An additional note from authentic source indicates that he was graduated from the Geneva Medical College in 1838 and from the Albany Medical College in 1840.

Dr. Kelley was a patriotic and public-spirited citizen who during the Civil War was "an unqualified terror to Copperheads of either side," and a generous helper to the loyal. His notice in his own paper and in other Rochester publications in August, 1862, expressed his wish to serve:

Medical Notice. The undersigned, desirous of doing something for those who have left their wives and children at home in this city or county, and have volunteered or may volunteer in the service of the Army of the United States, for the purpose of defending the flag of our union and the liberties of our citizens from the ruthless hands of tyrants and traitors; to all such wives and children residing in this city, to them or any of them requiring medical attendance while their husbands and fathers are in actual service in the war now existing in this union, I hereby pledge to all such needful medical services when called upon, free of charge,—and to such persons residing in the county for one half of the usual fee for such services. Dated at the city of Rochester, Minnesota, August 12, 1862.

This physician had various special interests and affiliations. He and his wife were members and supporters of the local Methodist Church which was organized in 1856. Dr. Kelley in August, 1857, was an organizer and the first Worshipful Master of Rochester Lodge No. 21 (A. F. and A. M.). In 1860 "Senator" Kelley was a leader in a movement to improve the public schools of Rochester. In 1861 he was a founder, and the first president, of the Olmsted County Temperance Society.

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As noted, Dr. Kelley early became a newspaper editor and publisher. In 1860 he bought (in partnership with his son-in-law W. H. Mitchell, who in 1866 published the first history of Olmsted County), the *Rochester City News* and converted it into the *Rochester Republican*, of which he became local editor in 1861. In the autumn of 1863 he sold the *Republican* and removed his printing equipment to Owatonna, Steele County, where he established the *Plain Dealer*, the first newspaper in that city. In 1868 he removed to Northfield, Rice County, and took over the *Northfield Recorder*, a little later the *Northfield Enterprise*; in 1870 he was in Faribault, publisher of the *Faribault Leader*.

In the summer of 1872, again living in Owatonna, Dr. Kelley lay seriously ill, having been in poor health for nearly a year, "with some disease that seems to baffle the skill of physicians; the doctor from a strong robust man weighing nearly 300 pounds, has gradually pined away . . ." Lewis Halsey Kelley died in Owatonna on September 9, 1872, aged sixty-four years. His funeral rites were conducted at Rochester with full Masonic ceremonies, and he was buried in Oakwood Cemetery beside his wife.

Of Dr. Kelley's family, one son James A. Kelley, died of tuberculosis in 1864 at the age of twenty-three years, at Bowling Green, Kentucky, where he had gone in hope of recovery. Lewis H. Kelley and Pembroke S. Kelley became well known in printing and newspaper circles of the state; in the early eighties they published the *Rochester Post* in the absence of the owner, the Hon. J. A. Leonard. Lewis died in 1892 at Wilmot, South Dakota, where he was publishing a newspaper; Pembroke died in 1929 in Rochester, where he long had had a job printing office. A note on the family appeared in the summer of 1906: the Kelley Brick Block, having become unsafe, was undergoing reconstruction, and the *Olmsted County Democrat*, in giving the history of the building, paid tribute to Dr. Kelley. There were in that year four of the family living: Pembroke; Mrs. Helen Kelley Hart, of California; Mrs. H. M. Lovell, of Minneapolis; and Mary Georgiana, wife of William H. Knapp, of Rochester. W. H. Knapp was for many years a prominent citizen of the city, merchant, business manager of the Rochester State Hospital, and finally executive officer of the Rochester Milling Company. In 1946 descendants of Dr. Lewis H. Kelley, resident in Rochester, were two grandsons, Harold W. Knapp and Spencer M. Knapp (died, 1947), and several grandchildren.

Patrick Nicholas Kelly (1858-1903), a native of Olmsted County, Minnesota, was from 1883 into 1890 a physician and surgeon, but chiefly physician and obstetrician, in Rochester.

Born in 1858 at a farm home in High Forest Township, in the vicinity of Carrollville, Patrick Nicholas Kelly was the son of James Kelly and Mary Rooney Kelly. Both parents were natives of Ireland, James Kelly of County Roscommon and Mary Rooney of County Leitrim; both came to America in the early fifties and west to Iowa, where they met and were married, in 1856, at Dubuque. Shortly after their marriage they settled in High Forest Township among neighbors of their own nationality and religious faith; they were among the organizers, in 1859, of St. Bridget's Roman Catholic Church. Their homestead lay about a mile and a half west of the church site. When their five children, Ellen, Mary, Alice, Bridget and Patrick Nicholas, were approaching their teens, Mr. and Mrs. Kelly rented the farm for a few years and removed to Austin to place them in school; later the family returned to the farm, and eventually made their home in Rochester.

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Patrick Kelly early went to school in the home district and in Austin. His academic education he received at St. John's College, Collegeville, Minnesota, and at St. Francis Seminary, Milwaukee; his medical training at McGill University, Montreal, from which he took his degree of doctor of medicine in 1883 (sometimes erroneously stated as 1884). He received his Minnesota state license No. 298 (R) on November 10, 1883. Unlike many of his contemporaries, he did not study with a preceptor preliminary to taking his medical course, but during at least his first summer vacation from McGill he read medicine with Dr. Francis A. Sanborn, of Rochester, in offices at the back of the Hargesheimer Drug store on the corner of Broadway and Zumbro Streets, offices that served many different Rochester physicians, preceding and following Dr. Sanborn's occupancy.

On his return to Rochester after some months of postgraduate work in Montreal, Patrick N. Kelly, M.D., C.M., opened an office over Poole's Drug Store and there in April, 1884, he was joined in partnership by his classmate Dr. Robert B. Struthers (M.D., C.M., 1883). Dr. Struthers had come on a visit but within two weeks he took out his state license, No. 871 (R); he remained with Dr. Kelly several months before returning east. After a few years Dr. Kelly occupied larger offices in the Cook Hotel Block.

Six feet tall, slender, blue-eyed, well groomed, dignified by mustache and small side whiskers, the young physician in his twenty-fifth year began his career under good auspices. He came of a family well known and highly respected, possessed excellent native ability, was a brilliant student and had received the best of scientific training. Recollections of persons who knew him and the comments of the local press indicate that early in his professional life his health, probably never robust, began to be affected by the strenuous conditions of practice of time and place. There is more than one account of his country trips, his hazardous crossing of the Zumbro River in flood, of his losing his horse and almost his life in an icy freshet of Willow Brook south of town. Serious illness, accompanied by pulmonary hemorrhage, occurred in 1884, again in 1885, and in subsequent years, in which he was attended by his colleagues the Drs. Mayo and other physicians in the city. He nevertheless continued in active practice; was elected coroner of Olmsted County in 1886, and was for several years a member of the United States board of pension examiners. He was a member of the Catholic Order of Foresters. He was a constant student of biography, history and medicine; his large library was distinguished by many first editions, chiefly Bibles and medical works, in English, French, German and Norwegian.

In the summer of 1890, again having suffered from pulmonary hemorrhage, Dr. Kelly went abroad, to recuperate his health and to improve his knowledge, and studied for three months in London, Berlin and Paris. On his return to Minnesota he announced his removal to Wabasha, Wabasha County, where he occupied the offices previously used by Dr. W. H. Lincoln.

Dr. Kelly was a member of the Minnesota State Medical Society from 1884, a charter member of the Olmsted County Medical Society when it was revived in December, 1885, and a member of the Wabasha County Medical Society (its secretary, 1892-1894, and its vice president, 1900). His contribution of scientific papers to all these groups has been noted, particularly an article on diphtheria, which Dr. W. J. Mayo cited before the state society in 1886, and one on puerperal eclampsia. In Wabasha County, as in Olmsted County, it is said, he was coroner and member of the United States pension board.

Patrick N. Kelly was married in Wabasha on April 21, 1896, to Clara Ginther

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of that place. The only child of the marriage, a son, died on June 9, 1901. Mrs. Kelly's death occurred on March 9, 1902. At that time Dr. Kelly had been several years in ill health, obliged to spend periods of rest in the south and elsewhere. After his wife's death he returned to Olmsted County and in the summer and autumn of 1902 he lived near Simpson, practicing medicine when able. In December, 1902, he was taken to the farm home of his sister Bridget, wife of M. A. Keane, in Olmsted County, near Pine Island, Goodhue County.

Patrick Nicholas Kelly died at the Keane home on March 11, 1903, at the age of forty-five years, "a man of strictest integrity; as a son, a brother, husband, father, citizen and friend, he fulfilled his duty most faithfully." There were many breaks in the family circle within a few years. James Kelly, the father, died at the home of Mr. and Mrs. Keane in May, 1903. Bridget Kelly Keane died a few weeks later on July 23. Mary Rooney Kelly survived her husband until January, 1907, when she died at her home in Rochester. Bridget and Alice Kelly had been successful teachers in St. Paul; Alice gave up her work to take care of her mother. Ellen, the eldest daughter, had died in girlhood from tuberculosis; Mary became Sister Mary Irene, of the Franciscan Order, in Rochester.

In 1946 there were living of Dr. Kelly's relatives, one sister, Alice Kelly (Mrs. William H.) McGraw, a widow of Grand Forks, North Dakota; a nephew, John C. Keane a chemist, since 1944 general superintendent of the Utah-Idaho Sugar Company, of Salt Lake City, and three grand-nephews, sons of Mr. Keane and Isabelle Langer Keane, M.D.; Mrs. Keane before her marriage was a pediatrician in Minneapolis. A niece, Helen Keane, wife of J. C. Schilleter, who was connected with the Iowa State College, at Ames, died in 1931.

Burney J. Kendall (1848?-1926), physician and surgeon, who practiced in Olmsted County in the period of 1868-1870, was a native of Enosburg Falls, Franklin County, Vermont. Knowledge of him has been derived chiefly, from the reminiscences of the late Dr. David S. Fairchild of Clinton, Iowa, who in 1869-1872 conducted his initial practice of medicine in the village of High Forest, Olmsted County; Dr. Fairchild came to Minnesota from Vermont on the advice of Dr. Kendall, a friend of his youth in a neighboring village.

Dr. Kendall studied medicine under a preceptor in Vermont (it is not known whether he was a graduate of a medical school) and soon afterward came to Minnesota and settled in Marion, with his office in the home of Henry H. Beach of that village. During his stay in the county, Dr. Kendall was a member of the Olmsted County Medical Society and a physician to the Olmsted County poor farm.

After about two years, Dr. Fairchild recalled, Dr. Kendall, convinced that routine practice of regular medicine would not lead to fortune, returned to Vermont, where he began to experiment in concocting patent medicines: "In the course of time he fell on a combination of drugs which was thought to have a beneficial effect on spavin in horses, and by skillful advertising gained a considerable reputation among farmers and horsemen. For many years 'Kendall's Spavin Cure' had a wide reputation. The pictures of fine horses and handsome women ornamented the walls of drug stores everywhere, and fine teams of horses and wagons could be seen on all important highways and 'Kendall's Spavin Cure' was a household name far and wide." Dr. Kendall was not skilled in high finance, however, and was forced by a combine to sell out his interest for some \$200,000. This considerable fortune, for that day, he invested in drug interests in Saratoga, New York, and in real estate in Omaha during boom time, with ultimate financial

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disaster. Dr. Fairchild said, "I saw Kendall but once after he left Marion in 1870. In 1926 I saw a notice of his death in an obscure Minnesota town."

Staunton B. Kendall (1808-1897), a homeopathic physician who for forty years was well known over a large portion of southern Minnesota, in 1883 was described as the pioneer physician of the region of Byron, Olmsted County.

Born on March 17, 1808, at Ira, Rutland County, Vermont he was the son of Ephraim Kendall and Lucinda Brown Kendall, who a few years earlier had come from England to the United States. Ephraim Kendall served with the American troops in the War of 1812.

When Staunton Kendall was thirteen years old he accompanied his parents to Canton, Bradford County, Pennsylvania, and there and at Wellsborough, in adjacent Tioga County, received his early education. On coming of age he learned carriage making, a trade which he followed until ill health forced him to abandon it. At the age of thirty-two years, he took up the study of medicine and after two years under Dr. Welles, a homeopathic physician, he began independent practice.

Staunton B. Kendall was married on December 18, 1832, to Fanny Fellows, a native of Shelburne, Franklin County, Massachusetts, born on March 15, 1815. In 1853 Dr. and Mrs. Kendall came west with their children. In Wyand, Bureau County, Illinois, the doctor practiced medicine for three years. In 1856 he came to Dodge County, Minnesota, and took up land in Ashland Township. Six years later he sold the farm and bought land near Byron, Kalmar Township, Olmsted County, and after three years established the family home in Byron. In 1867 Dr. Kendall built Byron's first hotel, which he ran for eight years, after which his son, Joseph B. Kendall, took it over. In 1869 Dr. Kendall opened a drug department in his son's general store and there dispensed his own drugs. Eckman and Bigelow, in writing of early medicine in Dodge County, mentioned Dr. Kendall and quoted his granddaughter, Miss Aurilla Kendall, of Byron: "The older settlers say that they could get prescriptions filled in Byron when they couldn't get them in Rochester."

At all times Dr. Kendall practiced his profession in addition to following other occupations. He became well known to settlers living within a radius of fifty miles of Byron, and it was said that at the height of his work as a physician, in a year in which 700 patients came under his care, he lost only two, one from diphtheria and one from cerebral meningitis. Exceedingly active, abstemious, a Methodist, a Whig in early times and later a Republican, he was always honored and respected.

When the Southern Minnesota Homeopathic Medical Society was organized at Owatonna in October, 1871, Dr. Kendall was present with other homeopathic physicians from Olmsted County, and the following year he became a member. This society was an active component of the state homeopathic society. On May 28, 1883, Dr. Kendall received state exemption certificate No. 428-3 (H), on the basis of proved years of practice.

In the eighteen eighties Dr. Kendall gave up his long ride, as the expression was those days, but continued to practice in the village and to maintain his interest in local affairs. His wife died on March 25, 1885, at the age of seventy-two years. When Dr. Kendall died on November 9, 1897, in his ninetieth year, he was survived by four of the large family of children: two sons, Joseph B. Kendall of Byron, John Kendall, formerly of Dodge Center, then of Phoenix, Arizona; and two daughters, Mary Kendall (Mrs. George) Dearborn, of Hudson, Wisconsin, and Aurilla Kendall (Mrs. G. H.) Stevens, of St. Paul. In 1946

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surviving Minnesota relatives of this pioneer physician were seven grandchildren: Miss Aurilla Kendall, of Byron; Mrs. M. F. Little, of Rochester; Miss Calla Kendall, of Minneapolis; all daughters of the Hon. Joseph B. Kendall, who, like his father, was long an influential figure in Olmsted County, in private business and in public affairs. Leonard Dearborn and George Dearborn were in St. Paul; Mrs. Helen Dearborn Huelster was in White Bear Lake; and Mrs. Ruth Dearborn was in San Francisco, California.

Carlos (sometimes given **Charles**) **Royal Keyes** (1856-1938) was from early 1882 into 1889 a resident physician and surgeon of Byron, Olmsted County, active in professional and civic affairs.

Born on April 21, 1856, at Chelsea, Orange County, Vermont, Charles R. Keyes was a son of Samuel M. Keyes and Olive Hanson Keyes, both of whom were natives of Chelsea, as were their parents. His maternal grandfather served on the American side in the War of 1812. Charles Keyes grew up on the home farm near Chelsea, attended the district school and Chelsea Academy, was a student at Dartmouth College, and on completion of two years at the medical department of the University of Vermont, at Burlington, he received the degree of doctor of medicine in 1881.

After practicing medicine a few months in Chelsea, Dr. Keyes came to Olmsted County, in February, 1882, and soon entered partnership with Dr. Isaac Hall Orcutt, of Byron. Dr. Orcutt was then relinquishing his professional ride and limiting himself to an office schedule. In January, 1883, Dr. Orcutt retired from practice, and as Dr. Staunton B. Kendall, venerable pioneer physician of Byron, was reducing his work, the young doctor was needed. Dr. Keyes was licensed in Minnesota on November 24, 1883, receiving certificate No. 383 (R).

In Byron, Dr. Keyes spent seven years that were filled with general village and country practice and active participation in community affairs. An old resident recalls him as short and slender, always kind, the finest of men. He was married on December 5, 1885, to Ella V. Sinclair, one of the six children of George Sinclair, farmer and native of Maine, who settled in Kalmar Township in 1856.

Dr. Keyes' professional card appeared in various newspapers of Dodge and Olmsted Counties. For a time he was local correspondent for the *Kasson Vindicator*, relaying news of Byron and Kalmar Township. He was a Baptist and a Republican; a member of the village council, its recorder and sometime president; president of the Byron Library Association, for which Mrs. Keyes was librarian. From 1882, succeeding Dr. Orcutt, through 1889, he was county physician for the village of Byron and the townships of Salem and Kalmar, and also was local health officer.

In December, 1889, Dr. Keyes accepted an appointment as assistant physician at the state prison at Stillwater, to begin on January 1, 1890. When he left Byron, the village announced its need of a physician, with the result that within a few weeks Dr. Frank M. Johnson came from Grand Meadow, Mower County.

Early in 1891 Dr. Keyes removed from Stillwater to West Duluth, where he spent the remainder of his long life, continuing in his tradition of professional and civic activity. He was a member of the Olmsted County Medical Society, the Minnesota State Medical Society, from 1888, the St. Louis County Medical Society and the American Medical Association. His favorite recreations in the Duluth era were hunting and curling.

After fifty-seven years as physician and surgeon Dr. Keyes died on August 10, 1938, at the Webber Hospital, Duluth, from coronary thrombosis, in his eighty-third year. Mrs. Keyes survived him.

(To be continued in the January issue)

President's Letter

THOUGHT AND CELEBRATION

With the holiday season—the religious significance of Christmas and the extended implication of new hope and new life that is inherent in New Year's celebrations—we come inevitably to a re-evaluation of fundamental values and objectives.

For, no matter how obscured with mythology and tinsel superficiality our observance of Christ's birthday becomes, still in some thoughtful and reflective moment we experience anew the inspiration that is centuries old and resolve to empower our lives with this moving force, rather than with the selfish personal ambitions that we often rationalize as independence and initiative.

It is a time for gratitude, humility and rededication to the principles of Christian living and, as physicians, we seek to apply those attitudes toward the conduct of our professional lives, so that our work may make its contribution to the advancement of humankind.

As physicians and as inhabitants of a world fraught with fear, frustration and suffering, we can be thankful, during this time of contemplation, for the miraculous discoveries of science that have been given us to use for the greater good of our fellow men. We can be grateful that freedom and human dignity, the God-given qualities that can make man godlike, have been preserved and regarded in a new light of reverence.

In wishing you the blessing of a joyous holiday, may I add, too, my appreciation for the opportunity of serving as your president this year and my thanks for the fellowship and co-operation you have unfailingly offered me.

A handwritten signature in dark ink, reading "J. J. Eliso." The signature is written in a cursive, flowing style with a large, prominent "J" and "E".

President, Minnesota State Medical Association

Editorial

CARL B. DRAKE, M.D., *Editor*; GEORGE EARL, M.D., HENRY L. ULRICH, M.D., *Associate Editors*

NPH INSULIN

THE IDEAL INSULIN would be one that had its maximum effect at the height of digestion of the three meals and minimum from midnight on.

The action of plain insulin is very fleeting. It was Hagedorn and his group in Denmark who discovered that the addition of protamine prolonged the action of insulin. The addition of zinc further prolongs the action. The addition of 1.25 mg. of protamine and 0.2 mg. of zinc per 100 units as in protamine zinc insulin prolongs the action of the insulin much longer than twenty-four hours and its initial action is so slight that frequently regular insulin must be added to provide early action after injection. The conversion of some of the regular insulin into protamine insulin by this mixing makes the amount of each in a mixture uncertain.

NPH insulin (neutral protamine Hagedorn) is an insulin with the addition of 0.5 mg. of protamine per 100 units and also zinc. Its action is said to last from twenty-six to thirty hours so that there is very little overlapping of dosage from day to day. Although it is not as prompt in its action as plain insulin, it is more prompt than protamine insulin, its maximum action coming seven to eleven hours after injection, and its action during the night being minimal. The new NPH insulin has been found to control the glycosuria in many diabetics who formerly required protamine and plain insulin mixtures. The elimination of the need for mixing two insulins is of course an advantage. It is claimed that plain insulin can be added to the NPH insulin without disturbing the prompt action of the plain because of the lesser content of protamine available for combination.

The NPH insulin is being widely used. It would seem that it represents a distinct advance in the insulin treatment of diabetes.

WORLD MEDICAL ASSOCIATION

SOME 500 medical leaders from twenty-eight nations of the world met in New York in October to discuss world medical and health problems. The World Medical Association is a voluntary organization of the national medical associations of forty-one countries. This is the fourth annual meeting and the first to meet in the United States.

Dr. Louis H. Bauer, chairman of the board of trustees of the AMA, is also secretary-general of the World Medical Association with headquarters in New York City.

Russia has never been represented in the WMA, and at present the countries in the Russian bloc also do not send representatives.

On October 17, Dr. Elmer L. Henderson of Louisville was inaugurated as president of the WMA. Last June he was inaugurated as president of the AMA and thus he holds the presidency of the two largest medical associations in the world. At his inauguration, he called attention to the fact that "physicians by their thinking, spirit and effort can set an example for governments, diplomats and people everywhere to preserve the peace."

Dr. Charles Hill of London, retiring president, was unable to attend, but in his message he expressed serious dissatisfaction with the present British National Health Service. He wrote that the general practitioner in England is losing both patients and prestige and that, if it becomes clear that no prospect for satisfactory settlement is in sight, "preparations should be made for a withdrawal of general practitioners from the National Health Service."

At one spirited session, delegates voted "to condemn the practice of euthanasia under all circumstances" as "contrary to the public interest and to medical principles as well as to natural and civil rights." Dr. S. G. Sen of India and Dr. E. A. Gregg of Great Britain favored "mercy death with the consent of the patient and the state to bring an end to intolerable suffering." Delegates from the United States, Ireland and

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France were strongly opposed. Dr. Marcel Poumailloux of France declared that approval of euthanasia would "open the door to all possible crimes and criminal practices."

WMA delegates voted to authorize the council to consider any applications of doctors of Western Germany and Japan to membership, despite the protests of two Israeli physicians on the grounds that many doctors in Germany had been involved in such human experiments as forced sterilization and vivisection of humans.

Scientific sessions included addresses on the latest advances in endocrinology, gastroenterology and the therapeutic uses of blood and its derivatives.

Dr. Dag Knutson of Djursholm, Sweden, was unanimously chosen president-elect of the association to take office at the fifth general assembly of the WMA to be held in Stockholm, Sweden, September 15 to 20, 1951.

One courteous gesture in connection with this year's meeting was the defraying of the cost of meals for the foreign physicians during their five-day attendance by fourteen American business firms. Other prominent business concerns presented each of the 120 wives accompanying their physician husbands from all over the world with a gift package containing a variety of American products.

The World Medical Association surely offers a medium for promoting understanding throughout the world and has so far utilized its opportunities

POLIOMYELITIS IN MINNESOTA

THROUGH the courtesy of Dr. D. S. Fleming, chief of the Section of Preventable Diseases of the Minnesota Department of Health, we are able to report the incidence and mortality of poliomyelitis in Minnesota this year from January 1 to October 31.

The Minnesota Department of Health received reports of 418 cases of poliomyelitis, including seventeen deaths in Minnesota residents during this period. Sixty-two cases, including four deaths in out-of-state residents, were also reported.

It has long been recognized that poliomyelitis, while appearing sporadically in the winter months, has its greatest incidence in August, September and October. Poliomyelitis acted in this respect true to form again this year, as the following

figures attest. The 418 cases had their onset as follows: January—9, February—1, March—2, April—1, May—4, June—11, July—34, August—120, September—140, October—96.

By sex, 239 (57 per cent) were male and 179 (43 per cent) were female. Of the seventeen deaths, ten patients were male.

According to age, 100 occurred in the first four years of life, 165 in the 5 to 14-year age group and 153 in the 15-year and older group. Three deaths occurred in the first age group (0 to 4 years); four in the second group (5 to 14 years); and ten in the third group (15 years and over).

By type, 206 were paralytic (75 bulbar and 131 spinal); 165 were non-paralytic, and 47 were not stated.

The 418 cases and seventeen deaths have been reported from fifty-eight counties, as follows:

County	Cases	Deaths
Aitkin	2	
Anoka	7	1
Becker	1	
Beltrami	0	
Benton	3	
Big Stone	0	
Blue Earth	12	
Brown	10	
Carlton	18	2
Carver	5	
Cass	0	
Chippewa	2	
Chisago	2	
Clay	1	
Clearwater	1	
Cook	0	
Cottonwood	0	
Crow Wing	4	
Dakota	2	
Dodge	0	
Douglas	2	
Faribault	9	
Fillmore	0	
Freeborn	27	
Goodhue	4	
Grant	1	
Hennepin, excl. of	22	
Minneapolis	80	3
Houston	1	
Hubbard	1	
Isanti	2	
Itasca	0	
Jackson	2	
Kanabec	0	
Kandiyohi	5	1
Kittson	0	
Koochiching	0	
Lac qui Parle	0	
Lake	2	
Lake O' Woods	0	
Le Sueur	2	1
Lincoln	0	
Lyon	0	

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McLeod	2	
Mahnomen	0	
Marshall	1	
Martin	3	
Meeker	1	
Mille Lacs	1	
Morrison	5	
Mower	13	
Murray	0	
Nicollet	2	
Nobles	1	
Norman	0	
Olmsted	7	1
Otter Tail	2	
Pennington	0	
Pine	1	1
Pipestone	2	
Polk	1	
Pope	5	
Ramsey, excl. of	7	1
St. Paul	35	2
Red Lake	0	
Redwood	9	1
Renville	1	
Rice	2	
Rock	0	
Roseau	0	
St. Louis, excl. of	12	
Duluth	30	1
Scott	0	
Sherburne	2	
Sibley	0	
Stearns	9	1
Steele	9	
Stevens	0	
Swift	0	
Todd	0	
Traverse	4	
Wabasha	0	
Wadena	1	
Waseca	3	
Washington	2	
Watsonwan	1	
Wilkin	0	
Winona	8	
Wright	5	1
Yellow Medicine	1	

Although the figures quoted are for the first ten months of 1950 only and a number of additional cases have already been reported since October 31, it is obvious that Minnesota has been fortunate this year in comparison with the ten worst years since 1915 as listed below:

Year	Cases	Deaths
1916	912	105
1921	702	102
1925	955	145
1930	479	37
1931	811	66
1939	564	53
1944	530	37
1946	2,881	226
1948	1,387	110
1949	1,715	110
1232		

MATERNAL MORTALITY STUDY IN MINNESOTA

The state-wide survey of maternal mortality being conducted by the Committee on Maternal Welfare of the Minnesota State Medical Association with the co-operation of the Minnesota Department of Health has been in progress since April 1, 1950. Up to this time, twenty maternal deaths have been reviewed. As a result of the study so far, it has become apparent to the Committee that several matters need to be emphasized and called to the attention of everyone concerned.

Physicians and personnel in charge of hospitals are urged again to report all maternal deaths promptly by telephone to the Division of Maternal and Child Health of the State Health Department at GLadstone 5973 (Minneapolis), reversing the charges for such calls. Early interviewing of physicians, nursing staff and immediate relatives concerned would be facilitated if this were done and would make for more accurate evaluation of mortality responsibility.

Physicians and hospitals are reminded that the study includes all female deaths where pregnancy is present, even though the pregnancy is not the cause of death. Furthermore, it includes all deaths occurring during a postpartum period of three months following delivery. To clarify the reporting of maternal deaths, therefore, the words "pregnancy" or "postpartum," whichever term applies, should be written on all death certificates to be included in this study, even though neither condition is the cause of death.

The need for adequate office and hospital records becomes increasingly apparent as the study progresses. Current notations on the case history of symptoms, findings, treatment, and progress of the case are extremely valuable in evaluating and placing the responsibility for a maternal death.

Physicians are reminded again that a copy of the Committee's findings in each maternal death may be obtained by the particular physician concerned upon his request.

The Committee is deeply appreciative of the excellent co-operation received thus far from all physicians and hospitals concerned in the present survey and believes that the findings of this study will be a potent influence in further reducing maternal mortality in Minnesota.

JAMES J. SWENDSON, *Chairman,*
Committee on Maternal Welfare

CHRISTMAS SEALS

The tremendous cost of tuberculosis in terms of lives, suffering, and dollars is emphasized in the 1949-50 annual report of the National Tuberculosis Association.

Killing more than 40,000 persons a year, tuberculosis is responsible for more deaths in this country than all other infectious diseases combined and leads all diseases, infectious or not, as a cause of death in the age group from 15 to 34.

While the tragic cost of tuberculosis in broken lives and broken homes cannot be calculated, the report states that the monetary cost of tuberculosis is estimated at more than \$350,000,000 a year. Included in this sum is the cost of care and service for the quarter of a million people known to have the disease and the search for an equal number believed to be tuberculosis victims but unknown to health departments. The sum does not include hospital construction costs.

Since the median age at which tuberculosis kills is 48, the report brings out that the disease each year is robbing the people of this country of 1,500,000 potential years of life, one million of which are working years. (These estimates are based on a life expectancy at birth of 65 and a working age limit of 65 years.)

Yet tuberculosis, a communicable disease, is also a preventable disease, the report states, and can be brought under complete control if the present campaign of the medical profession, the voluntary tuberculosis associations, and official health agencies is stepped up and relentlessly pursued.

Cited among the outstanding requirements to fight tuberculosis are a program geared to the needs of the day; further medical advances in the research and educational fields as well as in the diagnosis and treatment of the disease; more local health units to serve the health needs of all the people; a public better educated in the prevention and control of tuberculosis; more widespread efforts to find people with tuberculosis while the disease is still in an early stage; more hospital beds for tuberculosis patients; more nurses trained in the care of the tuberculous; improved services for tuberculosis patients, and international control of the disease.

While the prediction may be made that at some time in the future tuberculosis may become a medical rarity, the report stresses that close vigilance will always have to be maintained against it. It has already been the target, according to the report, of the "most widely organized, longest sustained, most productive campaign ever directed against a disease." The campaign was launched in 1904 with the organization of the National Tuberculosis Association, which today has 2,987 affiliated associations in the 48 states, the District of Columbia, Alaska, the Canal Zone, Hawaii, and Puerto Rico. The state Christmas Seal organization is the Minnesota Public Health Association.

Ninety-four per cent of the Christmas Seal funds raised is retained within the state where it was contributed to support state and local programs. Six per cent goes to the National Tuberculosis Association for medical research and other activities.

ADVISORY COMMITTEES TO SELECTIVE SERVICE

Instructions were sent out under date of November 17, 1950, to the members of the County Medical Advisory Committees to Selective Service. These committees in the county medical societies are held responsible for carrying out the procedures set up by the National Advisory Committee to Selective Service. It is their duty to advise local Selective Service Boards within the county medical society area concerning classification of individual members of the local medical profession and, although the local Selective Service Boards are the final authority on deferments, they are expected to follow closely the recommendations of advisory committees.

The Presidential order says that registrants shall be deferred as hardship cases "only if it is determined that (their) induction into the armed forces would result in extreme hardship and privation to a wife, child, or parent with whom he maintains a bona fide family relationship in their home." The order says deferment because of essential service to community shall be granted only "when his induction would cause the availability of essential health services to fall below reasonable minimum standards" in his community.

In addition to the above, State and National Advisory Committee policy, at the present time, is to recommend deferment on the following basis:

- (a) Physicians who have not completed at least one year of intern training.
- (b) Senior residents prior to the completion of the current year's training.
- (c) Full time postgraduate medical students until completion of the current academic year.
- (d) Physicians in teaching or research whose activities are considered necessary to the national health, safety or interest.

As we have mentioned before:

First priorities are ASTP or V-12 students or others who were deferred during World War II to continue their education and who subsequently served less than ninety days.

Second priorities constitute those similarly deferred but who served more than ninety days and less than twenty-one months.

First priorities will be processed first.

State and local quotas will be based on the number of registrants in the various categories rather than on the total registration.

The Army is undertaking to offer a reserve commission to every registrant at the time he takes his physical examination and before his induction. However, physicians can volunteer for any military service up to the time they are inducted. Under the law, men involuntarily inducted may not receive the \$100 monthly pay bonus which goes to volunteers.

MEDICAL ECONOMICS

Edited by the Committee on Medical Economics
of the
Minnesota State Medical Association
George Earl, M.D., Chairman

ELECTION OFFERS NEW CHALLENGE

Now that election noise has calmed down considerably, Americans can reflect upon and analyze the outcome.

Regardless of legislative implications, citizens should not sit back content and complacent, but should continue their vigilance of civic affairs. This public-spirited vigilance will maintain an America where all are free to elect or defeat candidates. Doctors, in their primary role as citizens, should continue their efforts to help keep America among the free nations of the world.

CANADIAN DOCTOR REPORTS ON BRITISH HEALTH SERVICE

Adding his voice to the many who are speaking out against the evils in the British national health service, Dr. A. W. H. Challis of Fort Frances, Canada, told Rotarians in International Falls, Minnesota, recently that "Britain's national health program has resulted in a record-breaking demand for medical and dental service at government expense." Dr. Challis, who reported on the British program from firsthand experience with it, stated that "about 80 per cent of the people who crowd doctors' waiting rooms probably don't need attention at all but must see a doctor to obtain permits for larger rations, discounts or special services."

Cites Overwork of M.D.'s

Dr. Challis stated that the role of "form-filler" isn't pleasing to Britain's doctors because they are trained "to do a special job and do it well." He said:

"Of the remaining 20 per cent of Britishers who avail themselves of the public health service, about 10 per cent are really sick and the other 10 per cent have minor ailments and disorders that they would have treated themselves in the days before the practice of medicine was nationalized.

"As a result of the heavy patronage, doctors of Britain

are terrifically overworked and unable to render the high quality personalized service that the profession normally demands.

"The average British doctor in the national health service will see as many as 100 patients during evening office hours. Much of his time is spent in filling out forms and permits for those not especially in need of attention, at a sacrifice for those who are seriously ill."

Paper Work Overwhelming

Citing the tremendous amount of paper work entailed in the daily operation of the British health system, Dr. Challis told Rotarians that a British doctor must carry as many as forty-two different kinds of government certificates in order to cope with any emergency he may be called upon to handle. "New demands for health service have crowded the hospitals to overflowing, just as they have burdened the individual practitioner. Hospital waiting lists are long and growing longer constantly," he said.

According to Dr. Challis, important surgical cases often have to wait from nine to twelve months. Lesser operations, such as tonsillectomies, have been known to be postponed eighteen to twenty-four months because hospital beds weren't available.

Warns of Mounting Costs

Dr. Challis cited a common fallacy about the cost of the program:

"... the ordinary citizen considers the service cheap, if not free, but actually the program is very expensive. The high costs are reflected in very high taxes on incomes and almost everything else."

The quality of Britain's health service, Dr. Challis concluded, has suffered under the nationalized system. He said, "Britain would have benefited more by raising the general standard of health service under the private practice plan than by offering a lower grade of service on a wholesale scale to everybody, all at once."

LEGISLATOR ASSAILS FEDERAL LOBBYING

Representative Henry J. Latham of New York recently issued a charge that "certainly the federal lobby is the largest and most powerful with which congress must contend." His charge, that the government spends a billion dollars a year to lobby for its proposals, was a countercharge after the lobby investigation committee reported that 152 corporations spent over thirty million in the last three years to influence legislation.

Representative Latham, using studies showing that government lobbying far exceeded that of business, stated that the most conspicuous examples of federal lobbying are the "campaigns for the Brannan plan and compulsory medical insurance."

Latham attacked the trip to Europe of Federal Security Administrator Oscar Ewing and a party of assistants, as "an effort to spread propaganda for the proposed Truman medical program."

Government Printing Tremendous

Studies on government printing alone show that costs run to over \$50,000,000 a year, according to Representative Latham. He referred to a study made by Representative E. H. Rees of Kansas, showing sixty-one separate government printing and duplicating plants in Washington, twenty-three in Philadelphia, and sixteen in Chicago, and their respective operating costs.

GOVERNMENT DEBT BIGGER THAN EVER

Almost simultaneously, the Commerce Department issued a statement saying that the "federal government entered this year deeper in debt than all the private firms and individuals put together." The total net federal debt was put at \$218,600,000,000, with state and local governments owing another \$18,000,000,000.

With the government spending more for lobbying than private interests spend, and involved in more debt than "private firms and individuals put together," some of those individuals might wonder how they would finance the more than \$1,500 they would be slated for if the amount were divided evenly among American men, women and children.

HEALTH INSURANCE BOOK ISSUED BY COMMITTEE

The most extensive summary of the arguments for national compulsory health insurance yet assembled, is contained in the new book issued by

the Committee for the Nation's Health entitled, "National Health Insurance Handbook—A Practical Guide for Leaders."

The handbook is picayunish, calls names and is based on a false premise. Arguments that compulsory health insurance is not socialized medicine are useless from the start, because any personal service, like medicine, that is administered in compulsory form from the government down to the individual, is, by nature, socialistic.

The book attempts to convince the reader that health insurance is desirable by saying, "NATIONAL HEALTH INSURANCE is a sound American plan of insurance—like Social Security." Obviously, Social Security is not like insurance: almost everyone pays for Social Security, yet there are countless restrictions, rules and regulations on who can and who cannot receive benefits.

In reporting on Americans who favor the plan, the book points proudly to men like Dr. Harold S. Diehl, dean of the University of Minnesota Medical School, twisting his words to put him in the position of favoring the British plan. The book claims Diehl as a national health insurance partisan, but does it through inaccurate and incomplete quotes. What his report really concluded was this:

"The National Health Service Act is only one facet of British socialism; the welfare state does not exist except as a part of the whole. Furthermore, conditions in Great Britain are so different from those in the United States that it would be folly to contend that what may be necessary for Britain today should be admirable for transfer to the United States. We, fortunately, have the time that is necessary to evolve an adequate medical service for our people without resorting to the centralization of authority in a welfare state."

Misused Words

The book makes flagrant misuse of many words. Among them: "American critics of the British program talk about 'bureaucracy' but avoid actual facts and figures on administration costs." When "critics of the British program" speak of bureaucracy, they are speaking of inevitable costs. They ask "How can costs of bureaucracy be avoided?" and "How can full and complete estimates of cost be made before any administration of the plan is done?" Whenever a middleman is set up between the individual and the goods and services he needs, the costs of those goods and services are bound to rise.

MEDICAL ECONOMICS

The new booklet presents a "Fact vs. Fiction" section with the warning for the reader to "Remember—the loaded questions are theirs" (meaning the AMA's). One of the questions presented is this:

"WILL PEOPLE WHO DO NOT WISH TO USE THE GOVERNMENT SERVICE HAVE TO PAY THE TAX?"

"Lobbyists say:

"Yes. Everybody with a paycheck will pay the tax, whether he uses the service or not."

"The truth is:

"Yes, just as we support our police and fire departments though we may not need help.

"Similarly, we also support our public schools, whether we send children there or not."

But obviously, thinking Americans will know that compulsory medicine, with everyone forfeiting a tax out of his paycheck, is the real beginning of more and more compulsion in more and more fields. It is no more difficult, nor more disturbing to think of socialization of the dairy industry, the grocery industry, the lawyers, the steel industry or the clothing industry. Then, Americans would be taxed to get "free" handling of law cases, or "free" steel girders, needed or not.

In such a case, the greatest blow of all would be suffered by traditionally American individual initiative.

Comparing an individual service like medicine to a standardized service like public schools, fire and police departments, is illogical thinking. It opens the way for government control of other individual and personal phases of American life.

MICHIGAN DOCTOR HITS GOVERNMENT MEDICINE

To help combat the forces which make socialistic schemes like government medicine seem favorable to unsuspecting Americans, physicians like Dr. L. Fernald Foster, secretary of the Michigan State Medical Society, are giving the actual facts to the American people. Recently Dr. Foster based a radio talk on the idea that truth is stronger than falsehood, proceeding from there to express the ideas that many doctors would like to put to their patients as aptly. Refuting many of the falsehoods used against American medicine, he said:

"Fortunately for scientific medicine and perhaps unfortunately for your future health, doctors of medicine are not propagandists. They do not know the art of the 'Big Lie,' which, I am told, is repeated often enough, becomes

accepted as truth. They do not practice the art of spreading malicious rumor for they are trained, as you want them to be, in keeping inviolate your confidence and your trust. Doctors of medicine are not generally great writers or speakers. They could not from the rigorous demands of medical education conscientiously devote sufficient time to become masters of the spoken word and engage in malicious propaganda techniques. This the doctors of medicine do know: they know how to keep you healthy; they know how to care for you when you are sick; they recognize and are intensely aware of those factors, both economic and social, that can and do affect your health and well being."

Medicine "Fighting Mad"

Dr. Foster told listeners that because the above things are true, the medical profession is "fighting mad today and is assuming a militant attitude against the purveyors of malicious lies. The profession has no quarrel with Mr. Taxpayer. It is angered because your tax money is being used freely by the propagandists to spread brutal falsehoods which hurt you and your chances for continued good health."

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Building
Saint Paul, Minnesota

Julian F. DuBois, M.D., Secretary

Fake Doctor Committed to Minneapolis Workhouse for Ten Months

Re: State of Minnesota vs. Frank Herman Gold, also known as "Dr." Frank H. Gould.

On October 25, 1950, Judge John A. Weeks of the District Court of Hennepin County, made an order committing Frank Herman Gold, also known as "Dr." Frank H. Gould, thirty-three years of age, to the Minneapolis Workhouse to serve the balance of a one-year sentence imposed upon Gold by Judge Weeks on January 24, 1950. Gold had been released from the Minneapolis Workhouse on March 21, 1950, on his plea that he had been adequately punished and that he desired to rejoin his family in the State of Washington. Subsequent investigation disclosed that Gold was working in a drug store on University Avenue in Saint Paul. This was in violation of the Court's order releasing Gold.

The Minnesota State Board of Medical Examiners learned that Gold was also representing himself as "Dr." Gould and advising people that he was going into partnership with a physician and surgeon, notwithstanding the fact that he has no medical training of any kind. Through the assistance of Mr. James F. Lynch, County Attorney of Ramsey County, and Saint Paul Police officers, Gold was apprehended on October 23, 1950. At the time of his arrest, Gold attempted to dispose of a stethoscope and other medical articles. The matter was called to the attention of Judge Weeks, who promptly issued an order vacating the order made by the Court on March 21, 1950, and ordering Gold returned to the Minneapolis Workhouse to serve the balance of his sentence.

(Continued on Page 1275)

MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

230 Lowry Medical Arts Bldg., Saint Paul, Minnesota

Julian F. DuBois, M.D., Secretary

PHYSICIANS LICENSED FEBRUARY 10, 1950

January 1950 Examination

Name	School		Address
BANNON, William Gregory	Indiana U.	MD 1945	Mayo Clinic, Rochester, Minn.
BENDER, Leonard Franklin	Jefferson Med. Col.	MD 1948	Mayo Clinic, Rochester, Minn.
BENZ, Edward John	U. of Pittsburgh	MD 1946	Mayo Clinic, Rochester, Minn.
BRAUN, Robert A.	U. of Vienna, Austria	MD 1937	State Hospital, Rochester, Minn.
BRUHL, Heinz Herbert	Albert Ludwigs U. Freiburg, Germany	MD 1928	Minn. School & Colony, Faribault, Minn.
CHRISS, John William	U. of Texas	MD 1944	Mayo Clinic, Rochester, Minn.
CLAYBURGH, Bennie James	Temple U.	MD 1949	St. Luke's Hospital, St. Paul, Minn.
COHEN, Maynard M.	Wayne U.	MD 1944	Veterans Adm. Hospital, Minneapolis, Minn.
COULTER, Patrick Trevor	Queen's U.	MD 1943	Mayo Clinic, Rochester, Minn.
DEAN, Carleton Robert	Wayne U.	MD 1945	204 TWH Phys. Med., U. of Minn. Hospitals, Minneapolis, Minn.
ENGEL, Rudolf C. H.	Friedrich Wilhelms U., Bonn, Germany	MD 1929	State School & Hosp., Cambridge, Minn.
ESTES, Hubert Ross	U. of Minn.	MD 1949	
	Northwestern U.	MB 1947	Mayo Clinic, Rochester, Minn.
		MD 1949	
HARTMAN, Emma Evelyn E.	U. of Helsinki, Finland	MD 1945	Div. of Pub. Health, City Hall, Minneapolis, Minn.
HENDERSON, James Alexander	U. of Wisconsin	MD 1947	Ancker Hospital, St. Paul, Minn.
JUDGE, Dom Joseph	Georgetown U.	MD 1945	Mayo Clinic, Rochester, Minn.
KELLY, Patrick Joseph	St. Louis U.	MD 1949	Minneapolis Gen. Hospital, Minneapolis, Minn.
KLOTZ, Maurice	U. of Illinois	MD 1934	Veterans Adm. Hospital, St. Cloud, Minn.
KURTIN, Joseph James	Marquette U.	MD 1949	Blooming Prairie, Minn.
LAZARTE, Jorge A.	U. de San Marcos, Lima, Peru	MD 1940	State Hospital, Rochester, Minn.
MANLOVE, Jr., Charles Henry	U. of Oregon	MD 1946	Ancker Hospital, St. Paul, Minn.
MASSA, David John	St. Louis U.	MD 1948	Mayo Clinic, Rochester, Minn.
McCARRAN, Samuel Patrick	Georgetown U.	MD 1946	Mayo Clinic, Rochester, Minn.
MOSSER, Donn Gordon	U. of Kansas	MD 1946	U. of Minn. Hospitals, Minneapolis, Minn.
PETRAKIS, Nicholas Louis	Washington U., St. Louis, Mo.	MD 1946	Mpls. Gen. Hospital, Minneapolis, Minn.
RUSTED, Ian E. L. H.	Dalhousie U., Can.	MD 1948	Mayo Clinic, Rochester, Minn.
SCHWEINFURTH, James Paul	Northwestern U.	MB 1946	Mayo Clinic, Rochester, Minn.
		MD 1947	
SIMMONS, Daniel Harold	U. of So. Cal.	MD 1949	318 Millard Hall, U. of Minnesota, Minneapolis, Minn.
TAUBERT, Ralph Thomas	U. of Michigan	MD 1949	4317 Webber Pkwy., Minneapolis, Minn.
TAYLOR, William Eugene	U. of Minnesota	MB 1948	1068 Lowry Med. Arts Bldg., St. Paul, Minn.
		MD 1949	
THOMAS, William Henry	St. Louis U.	MD 1949	Howard Lake, Minn.
TIHEN, Edward Nelson	Northwestern U.	MB 1947	Mayo Clinic, Rochester, Minn.
		MD 1948	
UTZ, John Philip	Northwestern U.	MB 1946	Mayo Clinic, Rochester, Minn.
		MD 1947	

Reciprocity Candidates

ASTROM, Algot	Boston U.	MD 1924	State Hospital, Fergus Falls, Minn.
BRODERS, Charles William	U. of Nebraska	MD 1947	Mayo Clinic, Rochester, Minn.
ERNST, Roland Percy	Washington U.	MD 1946	Mayo Clinic, Rochester, Minn.
GREENE, Daniel Edward	U. of Nebraska	MD 1943	309 LaBree Ave. N., Thief River Falls, Minn.
HUBBARD, Theodore Franklin	U. of Nebraska	MD 1946	Mayo Clinic, Rochester, Minn.
KEARNS, Thomas Pryor	U. of Louisville	MD 1946	Mayo Clinic, Rochester, Minn.
MILLER, Ross Hays	U. of Oklahoma	MD 1946	Mayo Clinic, Rochester, Minn.
MYERS, III, Cortland	U. of So. Cal.	MD 1949	Mayo Clinic, Rochester, Minn.
PATRICK, Robert Thornton	U. of Louisville	MD 1944	Mayo Clinic, Rochester, Minn.
PRICE, Richard Dean	U. of Oklahoma	MD 1946	Mayo Clinic, Rochester, Minn.
PURCELL, Howard Malcolm	U. of Tennessee	MD 1946	Mayo Clinic, Rochester, Minn.
RE MINE, Philip Gordon	Med. Col. of Va.	MD 1946	Mayo Clinic, Rochester, Minn.
SCHELL, Robert Frank	Stanford U.	MD 1947	Mayo Clinic, Rochester, Minn.
STEPHENS, William Edward	U. of Wisconsin	MD 1947	609 Med. Arts Bldg., Minneapolis, Minn.
THURINGER, Carl Bernard	U. of Oklahoma	MD 1946	Mayo Clinic, Rochester, Minn.
WALTON, Jr., William Henry	Creighton U.	MD 1947	Ancker Hospital, St. Paul, Minn.

PHYSICIANS LICENSED

<i>Name</i>	<i>School</i>	<i>Address</i>
WHITE, Jr., Roy	Tulane U.	MD 1945 Mayo Clinic, Rochester, Minn.
WILLIAMS, George Edward	St. Louis U.	MD 1945 Veterans Adm. Hospital, Minneapolis, Minn.

National Board Candidates

BROADBENT, James Curtis	Stanford U.	MD 1947 Mayo Clinic, Rochester, Minn.
COLE, Leon Rykoff	Columbia U.	MD 1946 U. of Minn. Hospitals, Minneapolis, Minn.
DENTON, Clarence	Long Island Col. of Med.	MD 1943 Mayo Clinic, Rochester, Minn.
DOANE, III, Joseph Chapman	Temple U.	MD 1948 Mayo Clinic, Rochester, Minn.
ELIOT, Johan Wijnblad	Harvard U.	MD 1946 Mayo Clinic, Rochester, Minn.
HERBERT, Jr., Carl Morse	Johns Hopkins U.	MD 1946 Mayo Clinic, Rochester, Minn.
JOHNSON, William Edward	Harvard U.	MD 1945 Mayo Clinic, Rochester, Minn.
JONES, Jr., Robcliff Vesey	Columbia U.	MD 1946 Mayo Clinic, Rochester, Minn.
LASSER, Elliott Charles	U. of Buffalo	MD 1946 U. of Minn. Hospitals, Minneapolis, Minn.
MANN, Richard Hess	Yale U.	MD 1946 U. of Minn. Hospitals, Minneapolis, Minn.
WATTIKER, Bernard John	N. Y. Med. Col.	MD 1944 Mayo Clinic, Rochester, Minn.

PHYSICIANS LICENSED MAY 12, 1949

April 1950 Examination

<i>Name</i>	<i>School</i>	<i>Address</i>
AUGUSTSSON, Hreidar	U. of Iceland	MD 1944 953 Med. Arts Bldg., Minneapolis, Minn.
ALEXANDER, William Harold	U. of Manitoba	MD 1949 Grey Nun's Hospital, Regina, Sask., Can.
BAKER, Perren Laurence	U. of Alberta	MD 1948 Mayo Clinic, Rochester, Minn.
BALOGH, Charles Joseph	U. of Kansas	MD 1946 Mpls. Gen. Hospital, Minneapolis, Minn.
BENUA, Richard Squier	Johns Hopkins	MD 1936 Mayo Clinic, Rochester, Minn.
BRAZOS, John Charles	U. of Illinois	MD 1949 115½ Main St., Watertown, Wis.
BRODIE, Jr., Walter Douglas	U. of Michigan	MD 1949 665 Montcalm Place, St. Paul, Minn.
BUESGENS, Ralph Hubert	Creighton U.	MD 1949 Waterville, Minn.
COURTIN, Raymond Frank	St. Thomas Hospital, London, Eng.	LRCP 1935 Mayo Clinic, Rochester, Minn. MRCS 1935
EKLUND, Carl D.	U. of Minnesota	MD 1949 State Hospital, Moose Lake, Minn.
FERGESSON, James Oliver	U. of Arkansas	MD 1945 Mayo Clinic, Rochester, Minn.
FLANAGAN, John Richard	U. of Alberta	MD 1948 Mayo Clinic, Rochester, Minn.
FORRER, Gravdon Randolph	U. of Michigan	MD 1949 Mpls. Gen. Hospital, Minneapolis, Minn.
GRAHEK, Anthony Stephen	U. of Minnesota	MD 1949 619 E. Chapman St., Ely, Minn.
GUY, Jack A.	Col. of Med. Evang.	MD 1950 New London, Minn.
HOOVER, Phyllis Rosander	U. of Minnesota	MD 1949 636 LaSalle Bldg., Minneapolis, Minn.
JEROME, Elizabeth K. Brumbaugh	U. of Illinois	MD 1947 608 Oliver Ave. S., Minneapolis, Minn.
JOHNSON, DeLores Evelyn	U. of Minnesota	MD 1949 Mpls. Gen. Hospital, Minneapolis, Minn.
JUNTUNEN, Roy Raymond	U. of Minnesota	MD 1950 Nashwauk, Minn.
KELLY, Edward Horan	U. of Minnesota	MD 1949 1835 Fairmont Ave., St. Paul, Minn.
LANDRETH, Eugene William	U. of Oregon	MD 1948 Ancker Hospital, St. Paul, Minn.
LUNDQUIST, James Andrew	Cornell U.	MD 1949 520 LaSalle Bldg., Minneapolis, Minn.
MARLOW, Gordon Vernon	U. of Wisconsin	MD 1949 934 Lowry Med. Arts Bldg., St. Paul, Minn.
McCAMPBELL, Malcolm Douglas	Ohio State U.	MD 1948 Mpls. Gen. Hospital, Minneapolis, Minn.
NELSON, Lillian Sonja	Woman's Med. Col.	MD 1948 3411 N. 4th St., Minneapolis, Minn.
NELSON, Maxine Olive	U. of Minnesota	MD 1949 5327 41st Ave. S., Minneapolis, Minn.
OLSON, Carl John	Northwestern U.	MD 1948 2300 Central Ave., Minneapolis, Minn.
PAULSON, Wallace James	N. Y. Med. Col.	MD 1945 U. of Minn. Hospitals, Minneapolis, Minn.
PAYNTER, Camen Russell	U. of Illinois	MD 1946 Mayo Clinic, Rochester, Minn.
RITZINGER, Jr., Frederick Ramsay	U. of Illinois	MD 1948 Lakefield, Minn.
TALLAKSON, Alloys Harold	U. of Minnesota	MD 1949 753 E. McDowell, Phoenix, Ariz.
TOMHAVE, Wesley George	U. of Minnesota	MD 1950 Mesaba Clinic, Chisholm, Minn.
WARD, Berl Brant	Indiana U.	MD 1946 Mayo Clinic, Rochester, Minn.
WELCH, John Stanley	Northwestern U.	MD 1946 Mayo Clinic, Rochester, Minn.

Reciprocity Candidates

BOSTWICK, Jackson Leonard	Tulane U.	MD 1939 Mayo Clinic, Rochester, Minn.
CIVIN, W. Harold	U. of Nebraska	MD 1940 Mayo Clinic, Rochester, Minn.
FLAGG, Jr., Geddes Broadwell	Tulane U.	MD 1942 645 Med. Arts Bldg., Minneapolis, Minn.
GWINN, John Lemuel	U. of Louisville	MD 1946 Mayo Clinic, Rochester, Minn.

PHYSICIANS LICENSED

<i>Name</i>	<i>School</i>	<i>Address</i>
HETRICK, Matthew Adam	Jefferson Med. Col.	Mayo Clinic, Rochester, Minn.
HICKEY, Alice Marie	Creighton U.	Maternity Hospital, Minneapolis, Minn.
KROACK, Kalman John	U. of Iowa	New Albin, Iowa
MANDEVILLE, John Weston	U. of Michigan	Mayo Clinic, Rochester, Minn.
MAY, Robert Bertrand	U. of Iowa	State Hospital, Fergus Falls, Minn.
PARSONS, Jr., William Belle	U. of Pittsburgh	Mayo Clinic, Rochester, Minn.
WELLBORN, Jr., Walter Horry	Emory U.	Mayo Clinic, Rochester, Minn.

National Board Candidates

ADAMS, Reta	N. Y. Med. Col.	MD 1936	Sate Hospital, Fergus Falls, Minn.
ALDRICH, Alvin Scott	Harvard U.	MD 1946	Veterans Adm. Hospital, Minneapolis, Minn.
BAHN, Robert C.	U. of Buffalo	MD 1947	Mayo Clinic, Rochester, Minn.
BROWN, Hector Mason	Cornell U.	MD 1948	Walker, Minn.
CLARK, Malcolm David	Harvard U.	MD 1948	4638 Fremont Ave. S., Minneapolis, Minn.
DeREAMER, John Wesley	Duke U.	MD 1946	Mayo Clinic, Rochester, Minn.
FALCONE, Alfonso Benjamin	Temple U.	MD 1947	Dept. Internal Med., U. of Minn. Hospitals, Minneapolis, Minn.
FREEDMAN, Marshall Arthur	U. of Pennsylvania	MD 1944	Mayo Clinic, Rochester, Minn.
FREY, Harry Bradford	U. of Iowa	MD 1947	Veterans Adm. Hospital, Minneapolis, Minn.
GIBB, Robert Pearse	Washington U., Mo.	MD 1948	Mayo Clinic, Rochester, Minn.
HOLT, Allen Howard	Syracuse U.	MD 1948	Mayo Clinic, Rochester, Minn.
HOPKINS, George Jerome	Geo. Washington U.	MD 1946	1918 S. Robert St., South St. Paul, Minn.
KLETSCHKA, Harold Dale	U. of Minnesota	MD 1947	Lake Hubert, Minn.
LUDWIG, James Behan	Washington U., Mo.	MD 1947	University Hospital, Ann Arbor, Mich.
MADISON, Mitchell Stanley	U. of Rochester	MD 1946	Mayo Clinic, Rochester, Minn.
NEUMAN, Harold Wilfred	Queen's U.	MD 1946	Mayo Clinic, Rochester, Minn.
QUER, Erich Alfred	Albany Med. Col.	MD 1946	Mayo Clinic, Rochester, Minn.
RIGLER, Robert Gardiner	U. of Iowa	MD 1948	Mayo Clinic, Rochester, Minn.
SAUNDERS, Jr., Benjamin H.	Harvard U.	MD 1946	Mayo Clinic, Rochester, Minn.
SAXTON, George Albert	Harvard U.	MD 1946	Mayo Clinic, Rochester, Minn.
SEKERT, Robert George	Northwestern U.	MD 1947	Mayo Clinic, Rochester, Minn.
SPEAR, Harold Charles	Harvard U.	MD 1947	Mayo Clinic, Rochester, Minn.
TAYLOR, Lloyd McCully	Duke U.	MD 1946	Mayo Clinic, Rochester, Minn.

PHYSICIANS LICENSED JULY 14, 1950

June 1950 Special Examination

<i>Name</i>	<i>School</i>		<i>Address</i>
ALLEN, John Howard	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
ALLISON, David Duberg	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
AUSTRIAN, Sol	U. of Minnesota	MB 1950	U. S. Marine Hospital, Galveston, Texas
AUTREY, William Albert	U. of Minnesota	MB 1950	St. Luke's Hospital, Duluth, Minn.
BERGQUIST, James Russell	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
BILLINGS, Harry H.	U. of Minnesota	MB 1950	Tripler Gen. Hospital, Moanalua, Hawaii
BONELLO, Frank Julius	U. of Minnesota	MB 1950	U. S. Marine Hospital, 4141 Clarendon Ave., Chicago, Ill.
BRISBIN, Charles Seamans	U. of Minnesota	MB 1950	Sacramento Co. Hosp., Sacramento, Cal.
BRODERICK, William Claire	U. of Minnesota	MB 1950	University Hospital, Oklahoma City, Okla.
CARLSON, Charles Vincent	U. of Minnesota	MB 1950	U. S. Naval Hospital, Oakland, Cal.
CAVERT, Henry Mead	U. of Minnesota	MB 1950	Dept. Phys., U. of Minn. Med. Sch., Minneapolis, Minn.
CHRISTENSEN, Philip Dixon	U. of Minnesota	MB 1950	Emanuel Hospital, Portland, Ore.
CHRISTOFERSON, Kent William	U. of Minnesota	MB 1950	Mary Hitchcock Mem. Hospital, Hanover, N. H.
COHEN, Henry W.	U. of Minnesota	MB 1950	Strong Mem. Hospital, Rochester, N. Y.
COLLE, Eleanor	U. of Minnesota	MB 1949	4204 Beard Ave. S., Minneapolis, Minn.
		MD 1950	
CULLIGAN, John Austin	U. of Minnesota	MB 1950	U. of Pa. Hospital, Philadelphia, Pa.
DONATELLE, Edward Patrick	U. of Minnesota	MB 1950	Tripler Gen. Hospital, Hawaiian Islands
DWYER, John Joseph	U. of Minnesota	MB 1950	St. Luke's Hospital, Duluth, Minn.
EASTMAN, Henry Victor	U. of Minnesota	MB 1950	U. S. Naval Hospital, Oakland, Cal.
ELLISON, Evan Sherman	U. of Minnesota	MB 1950	Milwaukee Co. Hospital, Milwaukee, Wis.
FIFIELD, Malcolm McLean	U. of Minnesota	MB 1950	U. S. Naval Hospital, Bremerton, Wash.
FINK, Lewis Darwin	Marquette U.	MD 1949	4089 Union Bay Circle, Seattle, Wash.
FLORINE, Martin Clifford	U. of Minnesota	MB 1950	Gorgas Hospital, Ancon, Canal Zone
FUNKE, Joyce Lucille	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
GAULT, Jr., N. L.	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
GILSDORF, Donald Andrew	U. of Minnesota	MB 1950	Miller Hospital, St. Paul, Minn.
GOLDMAN, Leonard William	U. of Minnesota	MB 1950	Wayne Co. Gen. Hospital, Eloise, Mich.
GRUBER, Matthew	U. of Minnesota	MB 1950	Bremerton Naval Hosp., Bremerton, Wash.

PHYSICIANS LICENSED

<i>Name</i>	<i>School</i>		<i>Address</i>
GULL, Hymie Arnold	U. of Minnesota	MB 1950	U. S. Marine Hospital, Staten Island, N. Y.
HAYES, John Burton	U. of Minnesota	MB 1950	Chas. S. Wilson Mem. Hosp., Johnson City, N. Y.
HOLM, Donald, F.	U. of Minnesota	MB 1949 MD 1950	1515 Charles Ave., St. Paul, Minn.
HOUGLUM, Arvid Jerome	U. of Minnesota	MB 1950	Denver Gen. Hospital, Denver, Colo.
HOWE, Gerald Everett	U. of Minnesota	MB 1950	San Diego Co. Gen. Hosp., San Diego, Cal.
HUDSON, Heber Scott	U. of Minnesota	MB 1950	Grasslands Hospital, Valhalla, N. Y.
INDIHAR, Jr., John Edward	U. of Minnesota	MB 1950	St. Mary's Hospital, Duluth, Minn.
INGLIS, William Hicks	U. of Minnesota	MB 1949 MD 1950	Redwood Falls, Minn.
JENSEN, Warren Douglas	U. of Minnesota	MB 1950	Baptist Mem. Hospital, Memphis, Tenn.
JOHNSON, Jr., Chester W.	U. of Minnesota	MB 1950	Gorgas Gen. Hospital, Ancon, Canal Zone
JOHNSON, Edward Alfred	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
JOHNSON, Roger Stanley	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
KIEFFER, Sherman Newton	U. of Minnesota	MB 1950	U. S. Marine Hospital, San Francisco, Cal.
KOCHSIEK, Robert Donald	U. of Minnesota	MB 1950	L. A. Co. Gen. Hospital, 1200 N. State St., Los Angeles, Cal.
LANGSJOEN, Per Harald	U. of Minnesota	MB 1950	Letterman Army Hosp., San Francisco, Cal.
LARSON, Donald Marvin	U. of Minnesota	MB 1950	Detroit Rec. Hospital, Detroit, Mich.
LARSON, Leighton Walter	U. of Minnesota	MB 1950	St. Luke's Hospital, Chicago, Ill.
LEAVENWORTH, Jr., Richard Ormond	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
LEWIS, Barton Leonard	U. of Minnesota	MB 1950	San Francisco Hosp., San Francisco, Cal.
LUND, Naomi Gene	U. of Minnesota	MB 1950	U. S. Naval Hospital, Oakland, Cal.
MEADE, Robert Cullings	U. of Minnesota	MB 1950	Milw. Co. Gen. Hospital, Milwaukee, Wis.
MEYER, Robert John	U. of Minnesota	MB 1950	St. Luke's Hospital, Duluth, Minn.
MIKKELSON, Jr., Vernon Edward	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
MILLER, Charles Frederick	U. of Minnesota	MB 1950	Marine Hospital, Seattle, Wash.
MORAN, John Patrick	U. of Minnesota	MB 1950	Wesley Mem. Hospital, 250 E. Superior St., Chicago, Ill.
NORMAN, David Dean	U. of Minnesota	MB 1950	Miller Hospital, St. Paul, Minn.
NORMANN, Jr., Stephen Theodore	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
NOVICK, Rosalind	U. of Minnesota	MB 1949 MD 1950	Deer River, Minn.
O'LEARY, John B.	U. of Minnesota	MB 1950	St. Mary's Hospital, Minneapolis, Minn.
ODLAND, Mark Eugene	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
OPPEN, Melvin Gerhard	U. of Minnesota	MB 1950	Oak Knoll Naval Hosp., Oakland, Cal.
PALM, Neil Merald	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
PEAKE, Eugene F.	U. of Minnesota	MB 1950	Santa Clara Co. Hosp., San Jose, Cal.
PETERSON, Jr., Paul Andrew	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
PREM, Konald Arthur	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
PREMER, Robert Frederick	U. of Minnesota	MB 1950	Detroit Rec. Hospital, Detroit, Mich.
ROLLINS, Pat	U. of Minnesota	MB 1950	St. Luke's Hospital, Chicago, Ill.
ROMNESS, Kenneth Berton	U. of Minnesota	MB 1950	Oak Knoll Naval Hosp., Oakland, Cal.
ROSANDER, John Elihu	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
RYSGAARD, George Nielsen	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
SELLS, Richard John	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
SEMBA, Thomas	U. of Minnesota	MB 1950	Detroit Rec. Hospital, Detroit, Mich.
SHELANDER, Marcus Ignatius	U. of Minnesota	MB 1950	St. Mary's Hospital, 2500 S. 6th St., Minneapolis, Minn.
SMITH, Harry John	U. of Minnesota	MB 1950	Milw. Gen. Hospital, Milwaukee, Wis.
SPAIN, W. Thomas	U. of Minnesota	MB 1950	Swedish Hospital, Minneapolis, Minn.
SPURZEM, Robert Raymond	U. of Minnesota	MB 1950	San Diego Co. Gen. Hosp., San Diego, Cal.
STADEM, Clifford Jennings	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
STRAND, Jack Warren	U. of Minnesota	MB 1950	Ancker Hospital, St. Paul, Minn.
VIX, Vernon Albert	U. of Pennsylvania	MD 1949	7904 St. Charles Ave., New Orleans, La.
WALONICK, Albert L.	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
WEBSTER, David D.	U. of Minnesota	MB 1950	Mpls. Gen. Hospital, Minneapolis, Minn.
ZAHRENDT, O. Lewis	U. of Minnesota	MB 1950	Swedish Hospital, Minneapolis, Minn.
ZIEGLER, Robert G.	U. of Minnesota	MB 1950	St. Luke's Hospital, Duluth, Minn.

Reciprocity Candidates

BOSWELL, J. Thornton	Ohio State U.	MD 1949	Wanamingo, Minn.
JONES, Richard Frank	U. of Oregon	MD 1946	Mayo Clinic, Rochester, Minn.
MIREE, Jr., James	Howard U.	MD 1941	Dept. Rad., U. of Minn. Hospitals, Minneapolis, Minn.
VANDERGON, Keith Gordon	Washington U., Mo.	MD 1949	Mpls. Gen. Hospital, Minneapolis, Minn.

PHYSICIANS LICENSED

PHYSICIANS LICENSED JULY 14, 1950

June 1950 Examination

Name	School		Address
AGNEW, Suzanne	U. of Minnesota	MB 1949 MD 1950	Bellevue Hospital, New York 16, N. Y.
ANDERSON, Chester A.	Temple U.	MD 1949	Madison, Minn.
BAARS, Coenraad J. M. W.	U. of Amsterdam, Netherlands	MD 1945	State Hospital, Anoka, Minn.
BARBER, John Roland	U. of Western Ont. Canada	MD 1947	Mayo Clinic, Rochester, Minn.
BROWN, Roland Graeme	U. of Minnesota	MB 1950	L. A. Co. Gen. Hospital, Los Angeles, Cal.
CESNIK, Robert John	Marquette U.	MD 1949	400½ E. St. Germain St., St. Cloud, Minn.
CULP, Ormond Skinner	Johns Hopkins U.	MD 1935	Mayo Clinic, Rochester, Minn.
GIBERSON, Raymond George	Dalhousie U., Can.	MD 1947	Mayo Clinic, Rochester, Minn.
GIBSON, Marvin McCall	Duke U.	MD 1944	Mayo Clinic, Rochester, Minn.
GOLD, David	U. of Minnesota	MB 1949 MD 1950	Veterans Adm. Hospital, Minneapolis, Minn.
HOOVER, Norman Winfred	U. of Minnesota	MB 1949 MD 1950	U. of Minn. Hospitals, Minneapolis, Minn.
KENNEY, Francis David	Rush Med. Col. of U. of Chicago	MD 1941	Mayo Clinic, Rochester, Minn.
KULSTAD, Oscar S.	U. of Minnesota	MB 1949 MD 1950	Dodge Center, Minn.
MacKENZIE, Donald Alexander	U. of Western Ont., Canada	MD 1946	Mayo Clinic, Rochester, Minn.
MUHICH, Ralph Anthony	U. of Minnesota	MB 1949 MD 1950	Letterman Army Hosp., San Francisco, Cal.
POST, Edmund A.	U. of Arkansas	MD 1949	2034 Lincoln Ave., St. Paul, Minn.
SHELDON, Warren Noble	U. of Minnesota	MB 1949 MD 1950	3718 Noble Ave., Robbinsdale, Minn.
SMORSZCZOK, Mitrofan	Stefan Batory U., Wilno, Poland	MD 1939	Monticello, Minn.
WILLIAMS, Robert Reiff	U. of Louisville	MD 1946	Mayo Clinic, Rochester, Minn.

Reciprocity Candidates

ANDREWS, Bernice Fern	Col. of Med. Evang.	MD 1938	Holdingford, Minn.
ARMSTRONG, Wilbur August	U. of Iowa	MD 1942	Mayo Clinic, Rochester, Minn.
BERNDT, Allen Emanuel	Loyola U.	MD 1943	533 Higley Bldg., Cedar Rapids, Ia.
BUCHER, Foster Donald	U. of Nebraska	MD 1949	Starbuck, Minn.
CARSON, Willis Thomas	Southwestern U.	MD 1947	Mayo Clinic, Rochester, Minn.
ELSTON, Lynn Wickwire	U. of Illinois	MD 1916	620-26 Wayne Pharmacal Bldg., Fort Wayne, Ind.
FISCHER, John Robt. Burr	Washington U., Mo.	MD 1949	124 E. Broadway, Owatonna, Minn.
GALLETT, Lester Edward	U. of Wisconsin	MD 1940	2131 W. Old Shakopee Rd., Minneapolis, Minn.
MATTHEWS, James Hall	U. of Arkansas	MD 1947	U. of Minn. Hospital, Minneapolis, Minn.
MILLS, Robert Jeffrey	Western Reserve U.	MD 1946	1829 Med. Arts Bldg., Minneapolis, Minn.
PETERSEN, Arthur B.	U. of Oregon	MD 1947	Mayo Clinic, Rochester, Minn.
VEASY, Lloyd George	U. of Utah	MD 1946	U. of Minn. Hospitals, Minneapolis, Minn.
WRIGHT, Samuel Martin	U. of Pennsylvania	MD 1946	Mayo Clinic, Rochester, Minn.

National Board Candidates

BARNES, Frances Page Shaw	Geo. Washington U., D. C.	MD 1945	State Hospital, Cambridge, Minn.
BRINK, William Richard	Duke U.	MD 1946	Mayo Clinic, Rochester, Minn.
CARLETON, Henry Guy	Harvard U.	MD 1947	Mpls. Gen. Hospital, Minneapolis, Minn.
FIELD, Charles Wiltzie	U. of Rochester	MD 1946	163 Orlin Ave., Minneapolis, Minn.
FRANKLIN, Gordon William	Col. of Med. Evang.	MD 1949	Northome, Minn.
HOEHN, David	Col. of Med. Evang.	MD 1938	Holdingford, Minn.
JUERGENS, John Louis	Harvard U.	MD 1949	Belle Plaine, Minn.
KARGES, Laurel Eugene	U. of Chicago	MD 1949	410 Pokegama Ave. E., Grand Rapids, Minn.
KIELY, Joseph Michael	U. of Illinois	MD 1947	Mayo Clinic, Rochester, Minn.
PRIOLETTI, Mario Joseph	Syracuse U.	MD 1947	5601 Grand Ave., Duluth, Minn.
RANDALL, Osmer Samuel	Johns Hopkins U.	MD 1927	3½ E. Kemp, Watertown, S. D.
SHOLL, Philip Richard	Harvard U.	MD 1946	Mayo Clinic, Rochester, Minn.
SYMMONDS, Richard Earl	Duke U.	MD 1946	Mayo Clinic, Rochester, Minn.
VAN VLEET, Mary Elizabeth	Northwestern U.	MB 1948 MD 1949	Mayo Clinic, Rochester, Minn.
WEHR, Maurice Burton	Geo. Washington U., D. C.	MD 1947	Mayo Clinic, Rochester, Minn.
WILKINSON, Paul Fredrick	Northwestern U.	MB 1947 MD 1949	St. Joseph's Hosp., St. Paul, Minn.

PHYSICIANS LICENSED

PHYSICIANS LICENSED NOVEMBER 3, 1950

October 1950 Examination

<i>Name</i>	<i>School</i>	<i>Address</i>
ABERNATHY, Robert Shields	Duke U.	MD 1949
ABERNATHY, Rosalind G. Smith	Duke U.	MD 1949
BAIN, Robert Clark	Northwestern U.	MB 1949
		MD 1950
BAKER, Jr., Hillier Locke	U. of Chicago	MD 1947
BERG, Roger Milton	U. of Minnesota	MB 1950
COLE, James Sharpley	Indiana U.	MD 1947
GAULT, Sarah Jane	U. of Minnesota	MB 1950
GILLESPIE, Andrew Erroll	McGill U., Can.	MD 1948
GRATTAN, Robert Thomas	Loyola U.	MD 1949
GUSTAFSON, Maynard B.	U. of Minnesota	MB 1942
		MD 1944
HALVORSEN, Daniel Kasberg	Yale U.	MD 1949
HASSETT, Gerard Roger	Creighton U.	MD 1950
HELLER, Edgar Elwood	Bowman-Gray U.	MD 1950
HINDERAKER, Harris Paul	Northwestern U.	MB 1949
HOILUND, Lucille Jeannette	U. of Minnesota	MB 1948
		MD 1949
KAISER, Irwin Herbert	Johns Hopkins U.	MD 1942
KROUT, Robert Melvin	U. of Pennsylvania	MD 1948
KUNKEL, Jr., William Minster	Johns Hopkins U.	MD 1946
MEINCKE, Ralph Frederick	U. of Minnesota	MB 1950
MILLER, John Palmer	New York Med. Col.	MD 1950
MYRE, Theodore Thomas	Northwestern U.	MB 1947
		MD 1948
NAKAMURA, James Yuzo	Col. of Med. Evang.	MD 1950
NELSON, Jr., Louis Alan	U. of Rochester	MD 1949
OLIVE, Jr., John Thomas	St. Louis U.	MD 1948
POWERS, Wilson Watkins	U. of Tennessee	MD 1945
ROMNESS, Joseph Oliver	Northwestern U.	MB 1947
		MD 1949
ROSS, Willard Berg	Rush Med. Col. of U. of Chicago	MD 1941
SCHWEINFURTH, Joseph David	Northwestern U.	MB 1949
		MD 1950
SIMON, Werner	U. of Berne, Switz.	MD 1937
STREET, John Paul	U. of Minnesota	MB 1950
TANI, George Tadashi	U. of Minnesota	MB 1950
TOMPKINS, Robert George	Northwestern U.	MB 1947
		MD 1949
VALENTI, Dan Anino	U. of Illinois	MD 1943
VISHER, John Sargent	Indiana U.	MD 1944
WARNER, Homer Richards	U. of Utah	MD 1949

Reciprocity Candidates

ABBOTT, Albert Riley	U. of Nebraska	MD 1949	Mayo Clinic, Rochester, Minn.
AKLAND, Leonard Rudolph	Southwestern Med. Col.	MD 1949	Veterans Hospital, Sioux Falls, S. D.
AYRES, Roland Wayne	Northwestern U.	MB 1943	Box 424, Alger, Ohio
		MD 1943	
BARRON, David Baer	U. of Minnesota	MB 1946	Veterans Adm. Hospital, Minneapolis
		MD 1946	Minn.
BEIRSTEIN, Samuel	Long Island Col. of Med.	MD 1929	506 Phys. & Surg. Bldg., Minneapolis
BOONE, Ervin Stanley	U. of Wisconsin	MD 1949	Veterans Adm. Hosp., Sioux Falls, S. D.
FINEGOLD, Mary Saunders	U. of Texas	MD 1949	5757 24th Ave. S., Minneapolis, Minn.
FINEGOLD, Sydney Martin	U. of Texas	MD 1949	5757 24th Ave. S., Minneapolis, Minn.
GREENFIELD, Irving	Temple U.	MD 1939	Mt. Sinai Hospital, Minneapolis, Minn.
HANNA, Richard Ewert	Washington U., Mo.	MD 1949	U. of Minn. Hospitals, Minneapolis, Minn.
KNUTSSON, Katherine Hegland	Vanderbilt U.	MD 1949	Mayo Clinic, Rochester, Minn.
LOGAN, James O.	Med. Col. of S. Car.	MD 1943	805 Jefferson, Wadena, Minn.
MAHON, Nathan Hall	Rush Med. Col. of U. of Chicago	MD 1942	4749 Grand Ave. S., Minneapolis, Minn.
MILLETT, Douglas Keith	Northwestern U.	MB 1945	R. 3, Box 878, Mesa, Ariz.
		MD 1946	
REITEMEIER, Richard Joseph	Colorado U.	MD 1946	Mayo Clinic, Rochester, Minn.
SIKKEMA, Stella Madge Hazen	U. of Michigan	MD 1941	Stud. Health Serv., U. of Minnesota, Minneapolis, Minn.

PHYSICIANS LICENSED

Name	School		Address
SIMMONS, William Henry	Northwestern U.	MB 1949 MD 1950	Mayo Clinic, Rochester, Minn.
STORK, Robert Mulkey	Stanford U.	MD 1947	Mayo Clinic, Rochester, Minn.
WINTER, Jr., Lewis Stuart	U. of Nebraska	MD 1944	Veterans Adm. Hospital, Minneapolis, Minn.
WINTERRINGER, James R.	U. of Oklahoma	MD 1945	Mayo Clinic, Rochester, Minn.
ZEE, Urban H.	Creighton U.	MD 1937	U. of Minn. Med. Sch., Dept. Ophthal., Minneapolis, Minn.

National Board Candidates

AUFDERHEIDE, Arthur Carl	U. of Minnesota	MB 1946 MD 1946	2728 1st Ave. S., Minneapolis, Minn.
BENEDICT, Walter Hanford	U. of Michigan	MD 1946	Mayo Clinic, Rochester, Minn.
BRAASCH, John William	Harvard U.	MD 1946	Mayo Clinic, Rochester, Minn.
BRADY, Joan Veronica	Long Island Col. of Med.	MD 1949	Mayo Clinic, Rochester, Minn.
BREIDENBACH, Jr., Warren Conrad	Harvard U.	MD 1944	Veterans Adm. Hospital, Minneapolis, Minn.
BRINDLEY, Clyde Owens	Duke U.	MD 1943	Mayo Clinic, Rochester, Minn.
COONEY, James Francis	Yale U.	MD 1946	Mayo Clinic, Rochester, Minn.
ELLIOTT, Harold James	U. of Buffalo	MD 1938	508 Grove St., Austin, Minn.
FIFER, William Richard	Columbia U.	MD 1949	U. of Minn. Hospitals, Minneapolis, Minn.
FREEDMAN, Robert	New York Med. Col.	MD 1945	Mayo Clinic, Rochester, Minn.
FUTCH, William Dumas	Tulane U.	MD 1942	Mayo Clinic, Rochester, Minn.
HANSON, Stephen Martin	Marquette U.	MD 1948	1707 Main St., La Crosse, Wis.
JOHNSON, David Strand	Geo. Washington U., D. C.	MD 1944	Mayo Clinic, Rochester, Minn.
KIELY, James Patrick	U. of Illinois	MD 1947	Mayo Clinic, Rochester, Minn.
KROBOTH, Jr., Frank James	Syracuse U.	MD 1946	Mayo Clinic, Rochester, Minn.
LISS, Henry Robert	Jefferson Med. Col.	MD 1948	Mayo Clinic, Rochester, Minn.
LOFTUS, Lawrence Robert	Duke U.	MD 1949	Mayo Clinic, Rochester, Minn.
LOWE, Charles Upton	Yale U.	MD 1945	U. of Minn. Hospitals, Minneapolis, Minn.
MANGER, William Muir	Columbia U.	MD 1946	Mayo Clinic, Rochester, Minn.
MARTIN, Franklin	McGill U., Can.	MD 1941	Mayo Clinic, Rochester, Minn.
McKAIG, Alan Manning	Syracuse U.	MD 1944	Red Lake Falls, Minn.
McMORRIS, Rex Ofal	U. of Nebraska	MD 1949	Mayo Clinic, Rochester, Minn.
MELLINS, Harry Zachary	Long Island Col. of Med.	MD 1944	46 Barton Ave. S.E., Minneapolis, Minn.
PRATT, George Francis	Harvard U.	MD 1948	Mayo Clinic, Rochester, Minn.
REISER, Milton Paul	U. of Michigan	MD 1948	U. of Minn. Hospitals, Minneapolis, Minn.
SYVERTON, Jerome Theda	Harvard U.	MD 1931	227 Millard Hall, U. of Minnesota, Minneapolis, Minn.
VERNON, Sidney	Long Island Col. of Med.	MD 1930	Two Harbors, Minn.
WATSON, Eleanor Jane	U. of Michigan	MD 1949	Mayo Clinic, Rochester, Minn.
WILLIAMS, Lawrence Burton	U. of Iowa	MD 1948	Mayo Clinic, Rochester, Minn.
ZHEUTLIN, Norman	Albany Med Col.	MD 1948	U. of Minn. Hospitals, Minneapolis, Minn.

QUESTIONS ON DRAFT LAW

Certain physicians, holding a degree of Bachelor of Medicine or of Doctor of Medicine, are presently liable for actual induction into the Army as recruits if they do not hold reserve commissions as medical officers in one of the armed services, whether in practice or not.

Non-veteran physicians, under twenty-six, were eligible for the draft before passage of the recent amendment to the Selective Service Act.

As a result of this amendment, physicians who were deferred from service and who thus continued their educations during World War II, whether at government expense or their own expense, and who have not served since then on active duty as medical officers for a period of twenty-one months, are subject to active duty as medical officers for twenty-one months.

Whether or not these physicians will be inducted into the Army as recruits or whether they will be deferred from service is entirely up to their local draft boards. Selective Service does not recommend deferment until completion of twelve months of internship.

These physicians, in other words, must apply for commissions as reserve officers or run the risk of induction as recruits. A physician who receives his actual induction notice may not then apply for a reserve commission and must enter service just as any other inductee. This

does not apply to the notice to report for a pre-induction physical examination. Once he has been inducted into the Army as an enlisted man he may apply for a commission, but he will not be eligible for the extra \$100 a month that is paid to all other medical officers.

None of the three military departments orders its reserve medical officers to active duty until they have completed at least twelve months of internship. In addition, reserve officers in their senior year of residency training will not be called to active duty until they complete their training, if at all possible.

It is rarely possible for a physician to apply for a reserve commission in the service of his choice.

Physicians now eligible for the draft who do not pass their physicals for commissions as reserve officers will not be inducted into the Army at a later time.

It is now possible to apply for a reserve commission without applying for active duty at the same time.

It is also possible now to apply for a reserve commission at the headquarters of military or naval districts, Army areas or numbered Air Forces.

Whether ordered to active duty as a medical officer or inducted for service as an enlisted man, the period of service is the same—twenty-one months.—Excerpt from AMA *Secretary's Letter*.

Minnesota Academy of Medicine

Meeting of May 10, 1950

The regular monthly meeting of the Minnesota Academy of Medicine was held at the Town and Country Club, Saint Paul, on May 10, 1950.

Dinner was served at 7:00 o'clock and the meeting was called to order at 8:00 p.m. by the President Dr. William A. Hanson.

There were fifty-two members and one guest present.

Dr. Hammes read the following memorial to Dr. J. C. McKinley.

J. C. McKINLEY

1891-1950

Dr. J. C. McKinley was born in Duluth, Minnesota, on November 8, 1891. He died on January 3, 1950, after an illness of four and one-half years.

He was the son of John and Alice (Frizzell) McKinley. He received his preliminary and high school education in Duluth, Minneapolis and New York City. He was graduated from the University of Minnesota in 1915 with a B.S. degree; in 1917 with an M.A. degree in anatomy; in 1919 with an M.D. degree; and in 1921 with a Ph.D. degree in nervous and mental diseases. His thesis was "The Intraneural Plexus of Fasciculi and Fibers in the Sciatic Nerve." He was a Diplomate of the American Board of Psychiatry and Neurology and a member of the Board of Directors of the American Board of Psychiatry and Neurology from 1941 to 1945. He was secretary-treasurer of the Minnesota State Board of Examiners in the Basic Sciences from 1931 to 1945. He held the following appointments during his academic career: 1915-1917, student assistant in anatomy; 1917-1918, instructor in pathology; 1918-1921, teaching fellow in neuropsychiatry; 1921-1925, associate professor of neuropathology; 1925-1929, associate professor of neurology—all at the University of Minnesota. In 1928-1929 he received a John Simon Guggenheim Fellowship and studied in Europe at Breslau and Munich. He returned from Europe in 1929, and from that time until 1945 he held the position of professor of neuropsychiatry at the University of Minnesota. In 1932 he became acting head of the entire Department of Medicine at the University of Minnesota, a position which he held through 1943. From 1943 to 1945 he was head of the Department of Neuropsychiatry and director of the Psychopathic Unit at the University of Minnesota Hospitals. From June, 1946, until the time of his death he was professor

emeritus of psychiatry and neurology at the University of Minnesota.

Dr. McKinley, during his academic career, held many important positions. He was chairman of the Committee on Nervous and Mental Diseases in the Minnesota State Medical Association from 1943 to 1945. He was president of the Minnesota Pathological Society from 1946 to 1947, and president of the Central Neuropsychiatric Association in 1939. Dr. McKinley was a member of many societies, among which might be listed: Minnesota Society of Psychiatry and Neurology, Central Clinical Research Club, Central Neuropsychiatric Association, Fellow of the American Medical Association, Society of Experimental Biology and Medicine, Fellow of the American Association for the Advancement of Science, and American Neurological Association. He was elected to the Minnesota Academy of Medicine on October 8, 1930, and the title of his thesis was "Familial Diffuse Sclerosis of the Brain."

Dr. McKinley, during his career, published a large number of scientific articles. He was editor of the *Outlines of Neuropsychiatry* and co-author with Dr. S. R. Hathaway of the Minnesota Multiphasic Personality Inventory. He was listed in *Who's Who in America*, *Who's Who in American Men of Science*, *Who's Important in Medicine*, *Biographical Encyclopedia of the World*, *Who's Who in American Education*, and *Who's Who in Minnesota*.

He was married to Doris I. Swedien on April 29, 1944. He also had four children by a previous marriage. Mrs. Leland Phelps, Mrs. George W. Miners, Mrs. Fernando Machado, and John Charnley McKinley.

Dr. McKinley was an outstanding scientist and teacher in his chosen field. He was beloved by his students and the entire medical faculty. He exerted tremendous influence in developing the Department of Neurology and Psychiatry at the University of Minnesota to its high standing at the present time. His guiding influence, his scientific ability, and his kind and co-operative spirit to his fellow workers will be remembered by and be helpful to all of us who were closely associated with him.

E. M. HAMMES, M.D.

The scientific program followed.

Dr. John M. Culligan, of Saint Paul, read his inaugural thesis.

THE PRESENT STATUS OF SURGERY OF THE SPLEEN

JOHN M. CULLIGAN, M.D., and JOHN A. CULLIGAN, M.B.

Saint Paul, Minnesota

The spleen is a mysterious organ of the body, possessing manifold functions. The complexity of its cell structure in an organ composed principally of lymphoid tissue confuses its physiology and makes a study of its functions extremely difficult. As the result of this complex nature, conclusions have had to be reached mainly by a process of trial and error. The multiplicity of different kinds of blood dyscrasias is only limited by the number of different blood cells. Whereas years ago many types of dyscrasias were lumped together under such diagnoses as splenic anemia or leukemia, we are now breaking these anemias down into more accurate terms depending on fine distinctions of the one type of blood cell involved. As more precise diagnoses are made, more exact indications for splenectomy will be achieved. Whereas splenectomy helped some of the old cases of splenic anemia, it failed in others completely. This no doubt was due to the fact that splenic anemia was a "catch-all" diagnosis. With the breakdown of this "catch-all" we learn which specific blood cell dyscrasias respond to splenectomy and which ones do not. Splenectomy has now been tried for every kind of anemia and splenomegaly and in sufficient numbers to arrive at some definite conclusions as to when it is indicated.

Among the conditions for which surgery of the spleen has been tried are the following: infections of the spleen from septicemia, pernicious anemia, myelogenous and lymphatic leukemia, Hodgkin's disease, aplastic anemia, polycythemia, luetic spleens, tuberculous spleens, splenomegaly due to malaria, splenic anemia, Banti's disease, sarcoidosis, trauma of the spleen, hemolytic icterus, congenital or acquired, thrombocytopenic purpura, splenic neutropenia, primary splenic panhematocytopenia, Felty's syndrome, thrombosis or anomalous obstruction of the portal vein with portal hypertension, cysts of the spleen, parasitic invasion of the spleen, abscesses, Gaucher's disease and ptosis. In many of the above-listed diseases, surgery of the spleen has been abandoned because of poor results or because some better treatment has been developed.

The physiology of the spleen is complex and must be studied from two angles, the normal and the abnormal. The spleen is primarily an organ composed of lymphoid and reticulo-endothelial cells and as such possesses all the normal functions peculiar to lymphoid tissue. Normally it acts as a reservoir for red blood cells, and helps destroy old red blood cells by phagocytosis and so forms bilirubin. It stores hemosiderin, phagocytes bacteria and foreign body particles. It produces lymphocytes and monocytes, and in embryonic life and in certain types of anemia in adults it produces red blood cells and leukocytes. When abnormal physiology in the spleen occurs, diseases result which arouse the interest of clinicians and which may necessitate surgical intervention. The function of increasing the fragility of the red blood cells

is one. This increased fragility leads to the development of hemolytic icterus due to the rapid destruction of the red blood cells and the accumulation of bilirubin in the blood. The abnormal physiology of inhibitory function on the bone marrow reduces the platelets to the point that thrombocytopenic purpura results. If the inhibition of granulocytes occurs, panhematocytopenia or splenic neutropenia result. At times all of these conditions may be present simultaneously, or any combinations of the above. In spite of the manifold and complex functions of the spleen, it is remarkable that so little change results generally in the body from removal of a normally functioning organ. Aside from some increase in erythrocytes, leukocytes and blood platelets, there seems to be little or no effect on the body generally. This is no doubt due to the fact that there is still an abundance of lymphoid and reticulo-endothelial tissue elsewhere in the body. As these tissues assume the functions of the spleen, the increase in the blood components returns to normal. Removal, however, of an abnormally functioning spleen gives almost startling curative effects in cases carefully selected with certain characteristic changes in the blood or other organs. The close co-operation between the internist and the surgeon is most essential, and it is only by this means that splenic syndromes amenable to surgery can be sifted. A trained hematologist with ability to obtain accurate bone marrow studies is absolutely essential in arriving at the fine differential diagnoses necessary to obtain good surgical results.

The technique of splenectomy is not up for discussion in this paper, but we wish to make just one or two remarks relative to it. Either a left upper rectus or transverse incision may be used. Delivery of the spleen through this wound should be accomplished before the pedicle is clamped. This may be best accomplished by incising the parietal peritoneum just lateral to the spleen. A search for accessory spleens should always be made as they are very common. In cases where gross splenomegaly is present, preoperative shrinkage by x-ray therapy may facilitate its removal.

I have divided the cases under consideration in this paper into four groups.

1. Those in which splenectomy now offers nothing or is contraindicated due to the fact that failure has resulted from removal in the past or some other type of treatment has given better results.

2. Conditions in which splenectomy may palliate though it may not be regarded as a cure.

3. Conditions in which splenectomy is definitely indicated and give on the whole excellent results.

4. Rare conditions with which we have had no experience but are enumerated here so that they may be considered and evaluated as experimental to complete the record.

MINNESOTA ACADEMY OF MEDICINE

The first group includes the following conditions:

Infections of the spleen resulting from generalized septicemia or endocarditis have never responded to any surgical procedure. The sulfonamides and the antibiotics have replaced surgery.

Pernicious anemia was at one time thought to be influenced favorably by splenectomy but the discovery of liver therapy proved so much more efficacious that it naturally has superceded all operative measures.

Myelogenous and lymphatic leukemia never responded in any satisfactory manner to surgical intervention.

Hodgkin's disease responds better at least temporarily to Roentgen therapy and aplastic anemia has never given any gratifying results.

Polycythemia was once thought to be partially benefited but further study and observations has led to the conclusion that surgery on the spleen offers little or nothing. In fact in this condition it is now the consensus of opinion that surgery is contraindicated.

In the second group are cases which may receive some palliation from splenectomy. Certain types of infections of the spleen, such as luetic gumma, tuberculosis and even malaria, may produce such enlargement of the spleen that removal makes the patient much more comfortable though no change in the course of the disease may be obtained. Splenectomy therefore may be indicated when the spleen is so large or painful as to be annoying to the patient.

Lymphosarcoma may involve the spleen along with other abdominal or retroperitoneal organs. Removal of the spleen and as much as possible of the rest of the involved tissue may give palliation. This should be augmented with deep roentgen therapy.

A case in point is that of K. T., a twenty-three-year-old, single man seen in April, 1948, who first noted symptoms of pain in the left upper quadrant of his abdomen in the fall of 1944. This recurred in the spring of 1947 and a mass developed in the left upper quadrant of his abdomen. On April 10, 1948, splenectomy and removal of much other sarcomatous tissue was performed. His recovery was good, and following this, roentgen therapy shrank the mass considerably. He remained fairly well until December 5, 1948, when he died. Postmortem examination revealed death was due to a large intra-abdominal hemorrhage.

Sarcoidosis of the spleen is rare and is usually associated with evidence of sarcoid disease elsewhere in the body. This peculiar hobnailed spleen may give the patient extreme pain. The organ may increase in size until it weighs 1500 to 2000 grams. Whereas splenectomy may not effect the course of the disease, the relief of the pain is enough to warrant operation.

An illustrative case is M. C., a thirty-six-year-old, single woman who suffered extremely severe left upper quadrant pain associated with extreme spells of vomiting, lassitude, weakness and joint pains and a 33 pound weight loss in the preceding year. Examination revealed a large hard spleen. Exploration disclosed a hobnailed spleen which was removed. It weighed 2.5 pounds and the pathological report by Dr. John Noble was sarcoidosis of the spleen. She has been much improved since her

operation, but once or twice a year still has attacks of colicky left upper quadrant pain. There is no evidence of progression of sarcoidosis elsewhere in the body.

Splenic anemia has been a catch-all diagnosis into which many obscure blood dyscrasias have been placed and some of which have been benefited by splenectomy. In more recent years certain rather distinct clinical syndromes such as panhematocytopenia and splenic neutropenia have been sifted out and will be considered later under group three. However, we think it is justifiable to advocate splenectomy for primary splenic anemia which does not fall into definite classifications because sometimes very startling cures result and no other treatment has been advanced which is better.

Banti's disease with its splenomegaly, fibrosis or cirrhosis of the liver and portal thrombosis presents pictures of such a varied nature that it is difficult to draw conclusions about the disease in its entirety. Treatment must be guided by the stage of the disease. We feel that we can conclude that in the early stages of Banti's disease before changes have taken place in the liver or the portal vein, splenectomy is beneficial. It certainly has a palliative effect and some observers believe that in real early stages it is curative. After the disease is well established, palliation is all that can be hoped for. In the late stages where collateral circulation is established, splenectomy carries a very high mortality from hemorrhage and shock but it may even be harmful because some of the collateral circulation may be destroyed. Because of these considerations splenectomy may be even contraindicated in this disease.

The case of R. K. was that of a twenty-year-old boy who had suffered from splenomegaly since the age of fourteen years. During these six years he suffered from two episodes of gastrointestinal hemorrhage probably arising from esophageal varices. The spleen had enlarged so that it extended low into the left lower quadrant of the abdomen. Splenectomy was performed in October, 1946, and a spleen weighing 1310 grams removed. The pathological report was Banti's disease. The patient received definite palliation from his symptoms but has had one spell of gastrointestinal hemorrhage since surgery. Otherwise he feels well three and one-half years after his operation. Perhaps if this spleen had been removed four or five years earlier we might have had a complete cure.

The third group contains those cases in which splenectomy is highly beneficial or curative:

Trauma of the spleen results usually from three causes: (1) injury caused by heavy dull or crushing blows to the abdomen, (2) perforating wounds, and (3) injury at a surgical procedure. The first type results most frequently from automobile accidents, sliding and bobsledding in which the injured strikes a firmly fixed object such as a tree, and occasionally in falls from any type of perch. The symptoms are generalized abdominal pain usually more marked on the left side, sometimes referred downward or to the left shoulder (Kehr's sign), pallor, occasionally vomiting, anxious appearance, sweating, thoracic breathing, splinting of the abdomen. Physical findings usually show evidence of shock, rapid

thready pulse, clammy skin, abdominal rigidity, and rebound tenderness more marked on the left side. The skin seems to take on a yellowish tint, the blood pressure findings are usually low to normal, and at times there is fixed dullness in the left upper quadrant (Ballance's sign). This was present in two of our nineteen cases of ruptured spleen. But was probably not looked for routinely. With such a picture, immediate exploration is indicated. One complication of rupture of the spleen which must always be remembered is delayed hemorrhage. A history of abdominal trauma is obtained but the patient does not have the shock symptoms of one with a frank rupture and intra-abdominal hemorrhage. No indication for explorations is present. However, any time up to ten to fourteen days later, sudden shock symptoms appear and the typical picture of a ruptured spleen sets in. This is caused by a tear in the splenic pulp which is loosely sealed over and the capsule holds the hemorrhage in abeyance until it reruptures later as the clot in the spleen increases in size. This was present in two of our nineteen cases.

A case in point is B. T., a thirteen-year-old girl who was hit just below the left costal margin by the handlebar of a bicycle. She had some pain in the left flank with nausea at the time, but was able to attend school the next day and for the rest of the week. Pain was present in the left side only upon twisting her body or breathing deeply. During the night of the fifth day following the accident she was awakened by a severe pain in her left side, constant and worse upon breathing. She was brought to the hospital where she was found to have considerable tenderness in the left upper quadrant and left flank, with rigidity of the entire abdomen, most pronounced in the left upper quadrant. There was a moderate amount of distention. The hemoglobin was 48 per cent and shortly later 42 per cent. She was operated upon and a subcapsular hemorrhage and hematoma found with free bleeding into the peritoneal cavity. Recovery was uneventful.

Another case is that of S. L., a young man, aged twenty, who, while playing basketball ten days prior to admission, was hit in the left side of the abdomen by the head of another player. For the next five days he had considerable malaise, tenderness around his umbilicus, and pain upon respiration. On the sixth day he felt fairly well and went to work, but on the following two days had a recurrence of the pain which necessitated his staying in bed. Again on the ninth day he returned to work but while there developed profuse sweating, dizziness, and nausea and vomiting. He was brought to the hospital where examination of the abdomen showed diffuse tenderness with moderate rigidity. Blood pressure was 95/54. The hemoglobin was 68 per cent, red blood count 3,520,000, and the white blood count 13,200. At operation the spleen was ruptured and markedly enlarged. Pathological examination did not disclose the reason for the splenomegaly, but the pathologists suggested a blood dyscrasia or some such severe infection as bacterial endocarditis. Blood studies and cultures, stool cultures, and agglutination tests were all negative. After a very stormy course during which he developed bronchopneumonia with pleural effusion, subphrenic abscess, and evis-

ceration of his wound, he died upon the thirty-sixth postoperative day. Autopsy showed areas of ulceration corresponding to the location of Peyer's patches, and the microscopic picture was compatible with a diagnosis of typhoid fever.

One of the difficulties in arriving at a diagnosis of rupture of the spleen is that frequently extensive injuries are present elsewhere which mask the symptoms. That is, the patient may be unconscious from concussion or skull fracture, he may be intoxicated, he may have a crushing injury to his chest with fractured ribs, pneumothorax or hemothorax, he may have fractured arms or legs, he may have rupture or perforation of other abdominal organs, or he may have rupture or perforation of the left kidney with hematuria. Any combination of the above listed injuries may be present and will have to be treated at the same time. However, as a general rule the other injuries may be more safely temporized with than the spleen injury because an untreated ruptured spleen is always fatal, whereas treatment of many of the other injuries may be delayed. Rupture of the spleen in extensive injuries should always be considered. It has often been referred to as the organ of shock in abdominal injuries, and where shock is present, rupture of the spleen and other abdominal organs should be considered. In our series of cases we had to remove the spleen and left kidney on four patients, two for simultaneous rupture of the spleen and left kidney due to the dull blows and twice for perforating bullet wounds which punctured both the spleen and kidney. This brings us to the second type of injury to the spleen, namely, perforating wound. These usually result from gunshot and stab wounds. The dictum of immediate exploration holds for this type of injury along with repairing any other type of injury which is present.

There was the case of T. O., a twenty-two-year-old man, with suicidal intent, placed the butt of a shotgun on the floor, leaned over the muzzle and reached down and pulled the trigger. The shot tore away the left upper quadrant of his abdomen and lower ribs and diaphragm. He was brought to the hospital gasping for breath because of a pneumothorax. The bowel was eviscerated. The patient was in shock. Supportive measures were instituted. Through the gaping wound the diaphragm was sutured to the lateral chest wall in a position higher than its normal attachment with through-and-through catgut sutures. Breathing immediately improved. The shredded ends of the tenth and eleventh ribs were removed. A splenectomy was performed. More than forty perforations of the large and small bowel were closed. The left kidney was not removed though shot could be felt in the capsule. A large retroperitoneal hemorrhage had occurred. The wound was closed as well as possible. For a time it seemed as though the patient might recover, but death occurred on the sixteenth postoperative day. The cause of death reported at post-mortem was local peritonitis, subdiaphragmatic abscess, left empyema, abscess of left lung, multiple abscesses of left kidney. It is interesting to speculate on how the defect in the abdominal wall could have been repaired had the patient recovered.

Another case is that of H. I., a nineteen-year-old clerk

in a drug store who was held up and shot in the abdomen by a bandit. The patient was in extreme shock. Supportive measures were instituted. The bullet had entered the abdomen in the left upper quadrant and lodged in the lumbar muscles. On exploration through a left rectus incision, it was found that the bullet had perforated the spleen, left kidney and transverse mesocolon. The spleen and kidney were removed and the rent in the mesocolon repaired. After three weeks the bullet was removed from the lumbar muscles. Convalescence was uneventful.

Thrombocytopenic purpura is a disease which responds to splenectomy. Characterized by excessive bleeding beneath the skin, from the nose, from the bowel, from the genito-urinary tract, or from any skin laceration or needle puncture, these patients frequently become very anemic and the hemorrhages are at times uncontrollable. Before treatment by splenectomy the disease was at times fatal. The diagnosis is made from the history and findings as noted above and the presence of a low blood platelet count. This count may have dropped from a normal of 200,000 plus to 35,000 or even as low as 2000. As soon as the diagnosis is made, splenectomy should be performed, as treatment by transfusion or intramuscular injections of blood only gives at best only temporary relief.

The case of P. T. was a child of eighteen months of age, whose parents gave the history of a sudden generalized ecchymosis which continued for four days but cleared spontaneously in ten days under treatment with calcium. A second episode occurred at the age of two years and four months, which cleared up following the injection of coagulose, but a large hematoma occurred at the injection site. Her platelet count was 75,000. She cleared again and had no recurrence until the age of six years when another attack occurred. This was in September and October of 1927. During this attack seventeen platelet counts were done. The highest count was 33,000 and the lowest was 10,000. On October 18, 1927, splenectomy was performed. All bleeding ceased, and at 3:00 p.m. on the day of surgery the platelet count rose to 38,000. The patient was discharged October 31, 1927, considerably improved. She has had no recurrence since and is now twenty-nine years old, and in November, 1949, her platelet count was 175,000.

There is also the case of Mrs. M. W., who was first seen February 6, 1941, at the age of forty-seven with typical petechial hemorrhages and melena. Platelet counts taken at intervals for the next seven months varied from 215,000 down to as low as 2000. It is significant that the hemorrhages and the low platelet counts coincided. On September 27, 1941, splenectomy was performed. Convalescence was uneventful and on November 17, 1941, two months after operation, her platelet count was 250,000. However her platelets have not always remained up and have been as low as 7000 since her operation, but in spite of this she has never had a recurrence of hemorrhage. We suppose an accessory spleen could account for this.

Congenital hemolytic jaundice is another disease which responds to splenectomy. This condition frequently occurs

in several members of a family and is characterized by mild jaundice and secondary anemia. Symptoms are usually due to the anemia. Enlargement of the spleen occurs early, and gallstones are a frequent complication. The diagnosis is confirmed by the presence of increased fragility of the red blood cells in hypotonic salt solution. On the other hand acquired hemolytic jaundice usually does not respond to splenectomy and usually does not show increased fragility of the red blood cells. Treatment in the acquired type should be directed at the underlying cause of the jaundice. If this is removed, the jaundice will clear up. In true congenital hemolytic jaundice the response to splenectomy is spectacular when the red-blood-cell-destroying spleen is removed. The increase in the red blood count is immediate almost before the operation is completed. Operation should be performed immediately even in the face of the poor condition of the patient as it offers the only cure.

The case of J. C. was a twenty-seven-year-old-boy admitted to the hospital January 17, 1942, complaining of weakness and a yellow pallor of his skin. He was extremely ill. His hemoglobin was 22 per cent, red blood count 986,000, white blood count 11,450. His red blood cells showed increased fragility to hypotonic salt solution. His spleen was palpable. Splenectomy was performed January 18, 1942, in spite of his poor condition. Citrated blood was given during the operation. Two hours after the operation his red blood count had risen to 1,750,000 and his hemoglobin to 38 per cent. Part of this rise was no doubt due to his transfusion but if the spleen had not been removed his transfused blood would not have been maintained. He left the hospital twelve days following operation, and in May, four months later, his hemoglobin was 85 per cent and his red blood count was 4,230,000. He has remained well since.

Panhematocytopenia and splenic neutropenia are primary hypersplenic conditions that have been sifted out of the catch-all of splenic anemia. In fact the differentiation between panhematocytopenia and splenic neutropenia is so confusing that they are considered at times as varying degrees of the same disease. Bone marrow studies are essential as a prognostic factor in determining the advisability of splenectomy. Where the laboratory studies of the bone marrow show a myeloid hyperplasia and a normal or increased number of granulocytes which do not reach the blood and also a destruction of the erythrocytes, and at times a low platelet count, splenectomy is indicated and gives a good result.

The case of J. N. B. was that of a seventy-five-year-old man who in March, 1938, was found to have an abnormal blood count with his hemoglobin 9.8 grams, red blood count 2,500,000 and a white blood count of 2,200 of which 767 were granulocytes. Repeated counts remained approximately the same and transfusions were the only means by which his hemoglobin could be maintained. Another count showed his hemoglobin to be 6.8 grams, red blood count 1,800,000 and white blood count 1,700. His platelet count was 160,000. His spleen was palpable. Bone marrow studies showed myeloid hyperplasia, increased erythropoiesis. A diagnosis of panhematocytopenia was made on a hypersplenism basis.

His spleen was removed on October 28, 1949. One month later his hemoglobin was 11.9 grams, his red blood count 4,390,000, and his white blood count 4,200 with 47 per cent granulocytes. His platelet count was 242,000.

Felty's syndrome is another splenic condition which has characteristics of splenic neutropenia and panhematocytopenia, secondary anemia and a low platelet count with splenomegaly. However, associated with these findings are painful joints due to arthritis deformans, skin pigmentation and generalized adenopathy. At times an associated thrombocytopenic purpura may be present. We have never operated upon a patient with this syndrome but have had one under observation since November, 1949. At no time did her complaints seem to justify operation.

The case of Mrs. J. P. D. was that of a forty-eight-year-old, white woman who was admitted to the hospital on November 8, 1949, complaining of nausea, vomiting and abdominal pain. She had been in her usual state of health until November 6, 1949, when she first noticed crampy abdominal pain following a meal of sauerkraut and spareribs. During the interval between onset of pain and admission she had several bouts of emesis. Bowels moved normally twice the day before admission. She had had a previous episode in August, 1949, which cleared up without medical attention. Past history revealed that she had had rheumatoid arthritis with severe deformities of hands and arms for approximately twenty years, a myomectomy and uterine suspension in 1934, and a subtotal hysterectomy in 1943. Examination on admission revealed a white woman in considerable pain. Her hands showed typical rheumatoid deformities and she was unable to extend her elbows. Her tongue was smooth, red and dry. The left lobe of her thyroid was somewhat enlarged. The abdomen was mildly distended and there was voluntary muscle guarding present. Tenderness was present in both lower quadrants. Bowel sounds were active but not high pitched. The spleen could not be palpated but x-ray examination revealed splenomegaly and small bowel distention. Blood pressure was 130/80, pulse rate 100, temperature 100.2. Blood counts on ten successive days revealed an average hemoglobin of 11 grams. Red blood counts averaged 3,500,000 and white blood counts averaged 3,000, the lowest being 2,200. There was an increase in the granulocytes, averaging about 80. Her platelet count was 120,000. Fragility test was normal. Bone marrow studies showed a myeloid hyperplasia. Her abdominal symptoms disappeared under intravenous medication and enemas and nasal suction. This patient, we believe, has a typical mild Felty's syndrome, and splenectomy is being considered if she has any recurrence of her abdominal complaints or if her blood picture changes progress. We do not feel, however, that it will affect her rheumatoid arthritis.

There are several other conditions associated with diseases of or enlargement of the spleen which respond to surgical treatment better than to medical. We mention them here so as to complete the record of surgical conditions of the spleen even though we have had no personal experience in cases of this kind. They, if encountered, should be given surgical consideration. Cole, Walter and Limarzi mention some of them.

Thrombosis or anomalous obstruction of the splenic vein may be reason for splenectomy. We appreciate that some of these cases may be early, ill-defined cases of Banti's disease. The diagnosis is made by the finding of splenomegaly, secondary anemia, leukopenia and thrombopenia. This condition no doubt was also included under the old splenic anemia group at one time. Hemorrhage from the gastrointestinal tract may be present, arising from esophageal varices which can at times be identified in roentgenograms. The consensus of opinion is that where obstruction of the vein exists primarily and no other complicating factors are present, splenectomy will cure. This no doubt accounts for some cures in so-called early Banti's disease where no liver damage or complications are present. The other group where the portal block is intrahepatic, such as in cirrhosis of the liver or advanced Banti's disease, no result can be obtained. The resulting portal hypertension has given rise to numerous procedures for its relief. Splenectomy will relieve or cure in early cases where the pathology is primarily an extrahepatic block in the portal vein itself. Nature tries to establish collateral circulation by dilating veins of the falciform ligaments, the veins of the cardia connecting with azygos and diaphragmatic veins, the hemorrhoidal veins and through veins of the retroperitoneal glands and appendages. Procedures other than splenectomy have been tried, some with some success at times. Talma devised anastomoses of various intra-abdominal organs, principally the omentum to the abdominal wall and between the liver, spleen and diaphragm and the anterior abdominal wall. Anastomosis of the superior mesenteric vein to the caval circulation was tried by Bogaras. Learmonth anastomosed the splenic vein to the left renal vein after splenectomy and nephrectomy with indifferent success and a surgical mortality of 33 per cent in fifteen cases. At any rate he has now discontinued the procedure. Ligation of some gastric arteries has been tried. Gastric resection has been tried by Wagensteen with a 50 per cent operative mortality and uncertain results.

So we think it may be concluded that good results will be obtained in early extrahepatic portal obstruction with portal hypertension by splenectomy. Uncertain results in late cases is the rule where blood diverting operations of any type are tried, and these procedures carry a high operative mortality. We have had no personal experience with any other surgical procedure other than splenectomy for this condition.

Cysts of the spleen, abscesses or parasitic invasion of the organ, Gaucher's disease and even simple ptosis may at times occur which, if giving symptoms, should be treated by splenectomy. All of these conditions are rare.

Conclusions

1. We have attempted to summarize the conditions for which splenectomy has been tried and found worthless or for which some other procedure has been developed which has been proven superior.
2. We have summarized the conditions which splenectomy palliates.
3. We have presented the conditions in which splenectomy cures or gives good results.

(Continued on Page 1275)

Minneapolis Surgical Society

Meeting of April 6, 1950

The President, Ernest R. Anderson, M.D., in the Chair

VAGOTOMY IN THE TREATMENT OF PEPTIC ULCER

FREDERICK M. OWENS, JR., M.D., F.A.C.S.
Saint Paul, Minnesota

TEN to 20 per cent of patients with peptic ulcer are referred to the surgeon for the treatment of some complication of the ulcer. The complications for which surgical treatment is sought are: (1) perforation, (2) hemorrhage, (3) pyloric stenosis, (4) intractable symptoms. In general, the choice of operation lies between gastric resection and vagotomy for these cases. It is not my intention to discuss the pros and cons of the two operations, but to present the results of a group of vagotomies done at the University of Chicago.

The discussion will be limited to the treatment of duodenal ulcer, for when operation is undertaken for gastric ulcer, there are definite advantages to gastric resection. The good results from vagotomy in the treatment of jejunal ulcer are recognized by even the most severe critics of the procedure; thus there is little indication for including this category in the discussion.

There are three groups of patients in which I feel vagotomy has distinct advantage over gastric resection; these are herein enumerated. First, the patient who has difficulty maintaining his normal weight, or the asthenic patient, is an excellent candidate for vagotomy inasmuch as following vagotomy such a patient is better able to maintain his weight or to gain weight than after gastric resection. Weight record studies in both groups of patients have borne out this contention quite consistently. Second, the patient with a severely scarred duodenum can be treated with a lower mortality and morbidity by vagotomy than by gastric resection. Admittedly, the antral exclusion operation may be done in these cases, but the mortality and morbidity in the group is significantly greater than with vagotomy. This is true, in general, of the difference in the morbidity and mortality between gastric resection and vagotomy, as will be discussed later. Third, the patient who is a problem insofar as his personality make-up is concerned tends to develop rather severe symptoms following operation. This patient may be considered for vagotomy and gastroenterostomy as he is less likely to develop severe disturbances after this operation than after gastrectomy.

During the past few years there has been considerable discussion as to the detrimental effects produced upon the other abdominal viscera by vagotomy, but all such fears are unfounded. Thorough study of the viscera of three patients who died many months following vagotomy have failed to reveal any microscopic evidence of change in the duodenum, jejunum, ileum, colon, kidneys, liver, pancreas or adrenals. These organs were considered to be completely normal by microscopic examination. Furthermore, when gastrectomy is carried out, there is ef-

fecting a vagotomy of varying degree. Following total gastrectomy or esophagogastrectomy or esophagectomy there results a complete vagotomy. Certainly no one has demonstrated any concern as to the effect of these operations on the abdominal viscera.

The physiology of vagotomy is well understood at the present time. Suffice it to say that there is a decrease of total volume of gastric secretion, a decrease of the acid output of the stomach, and a decrease of the tonus and motility of the stomach.

As first described by Dragstedt,¹ the operation was done transthoracically, but at the present time the majority of the operations are being done transabdominally. Not only does the abdominal route permit examination of the ulcer area and other abdominal viscera, but it allows for more complete division of the vagus nerves. At the same time a gastroenterostomy may be done to facilitate drainage of the stomach. At least 20 to 25 per cent of patients having vagotomy require accessory drainage of the stomach either at the time of the vagotomy or at a later date. At the present time it is my feeling that gastroenterostomy should be done in all cases of vagotomy, and I believe that the results in this group of patients will bear out this contention.

The technique of operation employed is to enter the abdominal cavity through a high left paramedian incision. The viscera are explored, and then the triangular ligament of the left lobe of the liver is exposed by the surgeon and cut by his assistant so that the left lobe can be retracted well to the right. The left lobe is then held out of the field with a stockinette covered Deaver or Harrington retractor. The esophagus is identified by palpation, and an incision is made in the peritoneum across the lower portion of the esophagus. This incision is enlarged bluntly, and the index finger is inserted into the mediastinum behind the esophagus. Gradually the exposure is increased so that it is possible to insert the index and middle fingers behind the esophagus and all adventitious tissue is brought toward the esophagus with the fingers while working higher and higher into the mediastinum. Finally, it is possible to bring at least three inches of esophagus down out of the mediastinum. The vagus nerves are felt as tight strands, resembling violin strings, along the esophagus. The nerves are picked up as high as possible and dissected distally, then clamped and ligated as high as possible. A segment of nerve an inch or two in length is then removed and the distal transected ends are ligated. Meticulous search is made for additional vagus fibers along the esophagus and also in the mediastinum.

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TABLE I. CLASSIFICATION OF RESULTS

Good—healing of the ulcer, patient asymptomatic, return to previous occupation or its equivalent.
Fair—healing of ulcer, but distressing symptoms such as late chest pain, bowel distress, mild obstructive symptoms, or mild diarrhea.
Poor—recurrence of ulcer, severe obstructive symptoms, disabling side effects such as dumping or protracted diarrhea; death.

When one is satisfied that he has divided all possible fibers, the opening in the peritoneum is carefully closed with interrupted sutures and the left lobe of the liver is fixed in place by suturing the divided triangular ligament. At this point a small gastroenterostomy is made between the posterior wall of the stomach and the first part of the jejunum. This is a retrocolic anastomosis and should measure 2.5 to 3 centimeters in length. A small gastroenterostomy stoma is advisable for reducing the likelihood of dumping symptoms.

The postoperative management of the patient following vagotomy is important. Constant gastric suction is maintained for three or four days; then the tube is removed, and during the first day without the tube the patient is allowed 30 c.c. of water every hour. He is aspirated at night to determine the presence of retention, if any. In the absence of retention the patient is allowed 60 c.c. of water an hour the second day after withdrawal of the tube and is again aspirated at night. The third and fourth days clear liquids are given ad lib. The fifth and sixth days six feedings of full liquid are given and the stomach is aspirated once at night to determine retention. The seventh and eighth day six feedings of soft diet are given. The ninth day clear liquids are given and a twelve-hour secretion test is run at night, and in the morning before removal of the tube, an insulin gastric secretion test is carried out. The patient is discharged on the tenth day and instructed that he should not allow his stomach to become distended. His diet is restricted to readily digestible foods for three weeks after discharge. Another insulin gastric test is done three months after discharge from the hospital.

The clinical results of the operation are classified according to the outline in Table I.

An ulcer was not classified as healed unless there was roentgenographic evidence of healing and freedom from ulcer symptoms. Table II classifies the results according to the type of operation performed.

There is definite superiority of the results in the group treated by vagotomy and gastroenterostomy over the other groups.

In the transthoracic group those patients considered as fair results were patients whose ulcers healed, but who continued to have mild symptoms of delayed emptying of the stomach. These symptoms were distressing, but not disabling. The poor results in this group include one death, six cases of recurrent ulcer, and six cases of obstruction severe enough to warrant operation. Five patients had gastroenterostomy with good result, one with fair result.

In the group of patients operated upon via the abdominal route who had vagotomy without any adjunct operation, the fair results are listed as two cases with diarrhea, one case with what is described as "dumping," and sixteen cases with mild obstructive symptoms. Those

TABLE II. RESULTS IN 465 VAGOTOMIES FOR DUODENAL ULCER

Transthoracic vagotomy—57	
Good—37—65%	Mortality—1—(1.7%)
Fair—7—12.2%	
Poor—13—22.8%	
Abdominal vagotomy—148	
Good—104—70.2%	Mortality—3—(2.0%)
Fair—19—12.8%	
Poor—25—17.0%	
Abdominal vagotomy and gastroenterostomy—260	
Good—239—91.9%	Mortality—1—(0.38%)
Fair—11—4.2%	
Poor—10—3.9%	

classified as poor results include three deaths, eleven recurrent ulcers and ten patients who underwent subsequent gastroenterostomy for obstruction (eight with good results and two with fair results), and one case with severe obstruction who refused gastroenterostomy for a long time and later had partial gastrectomy elsewhere.

Finally, in the group having vagotomy via the abdominal route and gastroenterostomy, there were eleven fair results (4.2 per cent), with four patients having "dumping," one being a drug addict, four having bowel distress, and two patients having mild diarrhea. In the poor result category there was one death, one Mann-Williamson ulcer; five recurrences of ulcer—one had second operation with lysis of adhesions and subsequently a fair result. One patient was re-explored for persistent symptoms and a duodenal diverticulum was removed with good results. One patient subsequently had hemorrhage of undetermined origin.

The statistics in this group of patients are self-explanatory, and it should be noted that the over-all mortality rate was 1.3 per cent. In the group of patients with vagotomy and gastroenterostomy the mortality rate was 0.38 per cent in a group of 260 patients. The results with this operation in the treatment of duodenal ulcer have been satisfactory; the mortality and morbidity has been low, and the clinical course of the patients such as to justify its continued use.

Summary

1. A group of 465 patients treated for duodenal ulcer by vagotomy alone or in conjunction with gastroenterostomy is presented.
2. A comparison between the results of operation in three different categories is made. The categories represent the type of operation, i.e., transthoracic, transabdominal, or transabdominal with gastroenterostomy.
3. The superiority of the results in the group with abdominal vagotomy and gastroenterostomy is significant.
4. The results suggest that this operation has a definite place in the treatment of duodenal ulcer.

Reference

1. Gragstedt, L. R., and Owens, F. M., Jr.: Supra-diaphragmatic section of vagus nerves in treatment of duodenal ulcer. *Proc. Soc. Exper. Biol. & Med.*, 53:152-154, 1943.

Dr. Carter W. Howell, Minneapolis, presented a paper entitled "Observations on 'The Common Channel Theory' in Pancreatitis."

Dr. Lyle J. Hay, Minneapolis, presented a paper entitled "Polyethylene Wrapping of Abdominal Aneurysm."

WILLIAM H. RUCKER, M.D., *Recorder*

◆ Reports and Announcements ◆

AMERICAN COLLEGE OF CHEST PHYSICIANS

A postgraduate course in diseases of the chest, sponsored by the Council on Postgraduate Medical Education and the Southern Chapter of the American College of Chest Physicians, will be held at Vanderbilt University School of Medicine, Nashville, Tennessee, January 22 to 27. The fee for the course is \$50. Further information can be obtained from the American College of Chest Physicians, 500 North Dearborn Street, Chicago 10, Illinois.

AMERICAN COLLEGE OF SURGEONS SECTIONAL MEETING

A cordial invitation is extended to physicians and surgeons in the State of Minnesota to attend a three-day sectional meeting of the American College of Surgeons in St. Louis on January 22, 23 and 24. The Statler Hotel will be headquarters for the meeting and requests for hotel accommodations should be directed to the Statler Hotel in St. Louis.

The program for this meeting will include new surgical motion pictures, a special program on trauma, a cancer symposium, and panels or papers on vascular surgery, chest injuries, fractures about the ankle joint, hematuria following trauma, neck surgery, osteomyelitis, ulcerative colitis, cancer of the stomach, and emergencies arising during operation. The first two days of the program will be presented at the headquarters hotel, and on January 24 the hospitals in St. Louis will offer a full day of surgical clinics for those in attendance at the meeting.

A \$5 registration fee will be required, except from Fellows and members of the Junior and Senior Candidate Groups of the College, and interns and residents.

Additional information may be obtained by writing to Dr. James Barrett Brown, American College of Surgeons, 40 E. Erie Street, Chicago 11, Illinois.

AMERICAN DERMATOLOGICAL ASSOCIATION PRIZE ESSAY CONTEST

The American Dermatological Association is offering a prize of \$300 for the best essay submitted of original work, not previously published, relative to some fundamental aspect of dermatology or syphilology. The purpose of this contest is to stimulate younger investigators to original work in these fields.

Manuscripts typed in English with double spacing as for publications, together with illustrations, charts and tables, are to be submitted in triplicate not later than February 1, and should be sent to Dr. Louis A. Brunsting, Secretary, American Dermatological Association, 102-110 Second Avenue, Southwest, Rochester, Minnesota.

Competition in this prize contest is open to scientists generally; not necessarily physicians.

The award will be made by a committee of judges selected to pass on the essays by the Research Aid Com-

mittee of the American Dermatological Association and the decision of the judges shall be final. This contest is planned as an annual one, but if in any year, at the discretion of the Research Aid Committee and judges, no paper worthy of a prize is offered, the award may be omitted.

The prize-winning candidate may be invited to present his paper before the annual meeting of the American Dermatological Association, with expenses paid in addition to the \$300 prize. Further information regarding this essay contest may be obtained by writing to the secretary of the American Dermatological Association.

The next annual meeting of the American Dermatological Association will be the Diamond Jubilee Observance of its founding and will be held May 23 to 26, 1951, at the Homestead, Hot Springs, Virginia.

CLEVELAND HEART SOCIETY

A practical course for resuscitation of patients in the operating room will be presented in Cleveland January 25 to 27, February 15 to 17, and March 15 to 17 by Dr. Claude S. Beck under the sponsorship of the Cleveland Heart Society.

Those interested, surgeons and anesthesiologists particularly, may contact Mrs. Jerry H. Bruner, executive secretary, Cleveland Heart Society, 613 Public Square Building, Cleveland 13, Ohio.

NEW ORLEANS GRADUATE MEDICAL ASSEMBLY

The fourteenth annual meeting of the New Orleans Graduate Medical Assembly will be held March 5 to 8, with headquarters at the Municipal Auditorium, New Orleans.

Nineteen outstanding guest speakers will participate, and their presentations will be of interest to both specialists and general practitioners. The program will include a panel discussion on ACTH and cortisone, a series of talks on trauma and neoplastic disease, a review of the application of radio-active isotopes in medical practice, clinicopathologic conferences, round-table luncheon discussions and many other features.

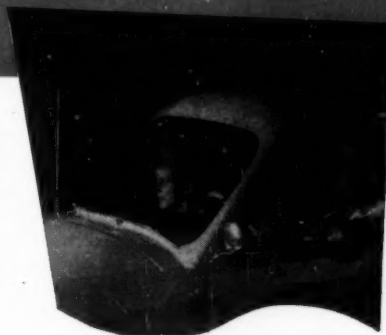
Another feature of the meeting will be daily demonstrations of medical and surgical procedures in color television. This program will be a telecast from Charity Hospital to the auditorium.

The Assembly has planned a postclinical tour to follow the 1951 meeting. On March 10 a party composed of doctors and their families will leave by plane for Panama. The itinerary also includes Medellin and Cali, Colombia; Quito, Ecuador, and Lima, Peru. Medical programs and visits to hospitals have been arranged, together with a full schedule of sightseeing. The group will return to New Orleans on March 25. Details and a complete itinerary are available at the office of the Assembly, Room 103, 1430 Tulane Avenue, New Orleans 12, Louisiana.



"A high percentage of cases of seasickness and carsickness can be aborted or prevented by suitable doses of dimenhydrinate (Dramamine)."

—Council on Pharmacy and Chemistry, New and Nonofficial Remedies, J.A.M.A. 743:815 (July 1) 1950.



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Announcing
THE FOURTEENTH ANNUAL MEETING
of
THE NEW ORLEANS GRADUATE MEDICAL ASSEMBLY
Conference Headquarters—Municipal Auditorium
March 5-8, 1951

GUEST SPEAKERS

Dr. Theron G. Randolph, Chicago, Ill.
Allergy
Dr. Marshall Brucer, Oak Ridge, Tenn.
Atomic Medicine
Dr. Donald M. Pillsbury, Philadelphia, Pa.
Dermatology
Dr. Jerome W. Conn, Ann Arbor, Mich.
Endocrinology
Dr. H. Marvin Pollard, Ann Arbor, Mich.
Gastroenterology
Dr. John L. McKelvey, Minneapolis, Minn.
Gynecology
Dr. Arlie R. Barnes, Rochester, Minn.
Medicine
Dr. Cornelius P. Rhoads, New York, N. Y.
Medicine
Dr. George S. Baker, Rochester, Minn.
Neurosurgery

Dr. Newell W. Philpott, Montreal, Can.
Obstetrics
Dr. John M. McLean, New York, N. Y.
Ophthalmology
Dr. Harold A. Sofield, Chicago, Ill.
Orthopedic Surgery
Dr. Henry B. Orton, Newark, N. J.
Otolaryngology
Dr. Stanley P. Reimann, Philadelphia, Pa.
Pathology
Dr. Albert V. Stoesser, Minneapolis, Minn.
Pediatrics
Dr. Paul C. Hodges, Chicago, Ill.
Radiology
Dr. Nathan Womack, Iowa City, Ia.
Surgery
Dr. Charles S. Welch, Boston, Mass.
Surgery

Dr. Austin I. Dodson, Richmond, Va.
Urology

Lectures, symposia, clinicopathologic conferences, round-table luncheons, surgical and medical procedures in color television and technical exhibits (All-inclusive registration fee—\$15.00)

The Postclinical Tour to Panama, Colombia, Ecuador and Peru—March 10-25

*For information concerning the Assembly meeting and the tour, write
Secretary, Room 103, 1430 Tulane Avenue, New Orleans 12, La.*

AMERICAN MEDICAL WRITERS' ASSOCIATION

The eighth annual meeting of the American Medical Writers' Association will be held at the Pere Marquette Hotel, Peoria, Illinois, September 19 during the sixteenth annual meeting (September 19, 20, 21) of the Mississippi Valley Medical Society in that city.

The association will publish its 1951 membership booklet in February and is desirous of securing as members all physicians interested in any phase of medical writing. Any AMA member who has published two or more articles, indexed by the *Quarterly Cumulative Index Medicus*, is eligible for membership. Further details may be secured from the secretary, Dr. Harold Swanberg, 510 Maine Street, Quincy, Illinois.

**MISSISSIPPI VALLEY MEDICAL SOCIETY
ESSAY CONTEST**

The eleventh annual essay contest of the Mississippi Valley Medical Society will offer a cash prize of \$100, a gold medal, and a certificate of award for the best unpublished essay on any subject of general medical interest, including medical economics and education. Contestants must be members of the American Medical Association who are residents and citizens of the United States. The winner will be invited to present his contribution at the sixteenth annual meeting of the Mississippi

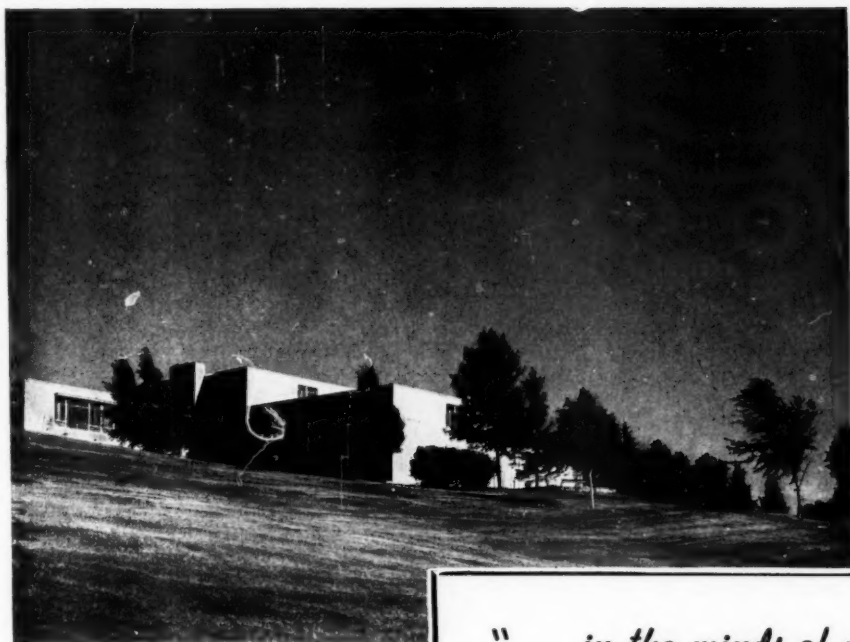
Valley Medical Society to be held in Peoria, Illinois, September 19, 20, 21, 1951. All contributions must be typewritten in English in manuscript form, submitted in five copies, not to exceed 5,000 words, and must be received not later than May 1.

Further details may be secured from Dr. Harold Swanberg, secretary, Mississippi Valley Medical Society, 209-224 W.C.U. Building, Quincy, Illinois.

CONTINUATION COURSE

The University of Minnesota announces a continuation course in ophthalmology for physicians specializing in this field. The course will be presented at the Center for Continuation Study, January 22 to 26. Dr. Alson E. Braley, professor and head of the Department of Ophthalmology, University of Iowa, and Dr. A. D. Ruedemann, professor and head of the Department of Ophthalmology at Wayne University, Detroit, will be the visiting faculty members for the course. Staff members of the Mayo Foundation and University of Minnesota Medical School will complete the faculty for the course. The course is given under the direction of Dr. Erling W. Hansen, clinical professor of Ophthalmology and director of the Division of Ophthalmology.

(Continued on Page 1256)



"...in the minds of men..."

In treating the disorders that exist in the minds of men, psychiatric nursing plays a vital role. Proper care can be given patients only by properly trained psychiatric nurses.

In view of the present shortage of such trained nurses, and the desperate need for them, the Glenwood Hills Hospitals School of Nursing, Neurology and Psychiatry is, appealing to you physicians for aid in solving this problem.

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ANNUAL CLINICAL CONFERENCE CHICAGO MEDICAL SOCIETY

March 6, 7, 8, 9, 1951 • Palmer House, Chicago

A conference planned to keep physicians abreast of the new things which are developed from year to year.

Special feature of the 1951 Conference—DAILY TEACHING DEMONSTRATION PERIODS from 11:00 to 12:00 noon and 1:30 to 3:00 P.M. Demonstrations will cover:

Amputations and Prostheses
Patients Treated with ACTH and Cortisone
Dermatologic Clinic
Organisation of a Blood Bank
Neurological Clinic
Sterility Tests
Speech Without Larynx

Proper Application of Casts and Splints in Fractures
Local Anesthesia
Fluid and Electrolytic Balance in Surgery
Use and Misuse of Obstetrical Forceps
Common Problems in X-Ray Interpretations
Laboratory Tests (Diabetes, Proper use of Insulin, Prothrombin Tests)

Thirty-four outstanding teachers and speakers will present half-hour lectures on subjects of interest to both general practitioner and specialist.

Four PANELS on timely topics

Scientific exhibits worthy of real study and helpful and time-saving technical exhibits.

The CHICAGO MEDICAL SOCIETY ANNUAL CLINICAL CONFERENCE should be a MUST on the calendar of every physician. Plan now to attend and make your reservation at the Palmer House.

(Continued from Page 1254)

MINNESOTA SOCIETY OF INTERNAL MEDICINE

At the annual meeting of the Minnesota Society of Internal Medicine at Rochester on October 30, Dr. A. E. Brown of Rochester was elected president of the organization. He succeeds Dr. Frederick H. K. Schaaf, Minneapolis, in the office. Also named as officers were Dr. Sam Boyer, Jr., Duluth, vice president, and Dr. Robert L. Parker, Rochester, secretary-treasurer.

SAINT PAUL SURGICAL SOCIETY

The Saint Paul Surgical Society held its regular meeting at the Minnesota Club, Saint Paul, on November 15. The principal speaker of the evening was Dr. Richard A. Telinde, chief of gynecology at Johns Hopkins University, Baltimore, who discussed "Endometriosis."

SOUTHWESTERN MINNESOTA MEDICAL SOCIETY

At the annual meeting of the Southwestern Minnesota Medical Society at Pipestone on October 30, Dr. P. J. Pankratz of Mountain Lake was elected president of the organization. Other officers named were Dr. S. S. Chunn, Pipestone, president-elect; Dr. W. B. Wells, Jackson, vice president, and Dr. O. M. Heiberg, Worthington, secretary-treasurer.

The principal speaker at the meeting was Dr. A. H. Wells, Duluth, who discussed the value of having the services of a pathologist in the southwestern Minnesota area.

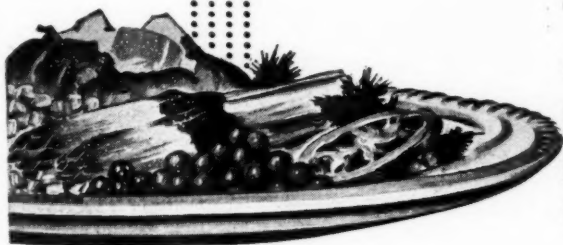
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Woman's Auxiliary

PRESIDENT URGES MEMBERSHIP DRIVE

Mrs. Charles W. Waas

It is not my intention at this time to give you a report on the Conference of Presidents held in Chicago last month from which I have just returned. However, there are some suggestions which I should like to pass on to you. First, I should like to tell you that there were only five presidents who were absent. It was thrilling to be a part of such a large group of presidents and their presidents-elect, and our national president, Mrs. Herold, was so appreciative of the large attendance. Our own Mrs. Wahlquist, national president-elect, presided at the two-day session. We are justly proud of her.

Membership in a medical auxiliary is a privilege extended to us by our husbands. Why, then, are there so many doctors' wives in our own state who do not belong? Is it the fault of auxiliary members? Have we extended a truly friendly invitation? The cost of membership is so small that it never enters into the question. Increased membership is one of our greatest aims this year. Won't you do your share? Don't forget the doctors' wives who live in counties where there are no auxiliaries. Members at large are invaluable. Our parent organization is eager to have them. Ask them to join now and then invite them to attend your next meeting. Here let me say that at the next state board meeting which will be held in Minneapolis, probably during the month of January, all members of the state auxiliary will be most welcome. It will not be confined to board members. Invite new members to attend with you.

In your drive for subscriptions to *Today's Health*, have you thought about contacting young mothers? There is a wealth of information in this authentic magazine for them, and when they become acquainted with it they will surely want to carry on their subscription year after year. We are neglecting our friends and neighbors if we deprive them of the opportunity of reading this worthwhile periodical. Have you thought about giving subscriptions for gifts? Perhaps in your community there are mothers of families who would be happy to receive such a gift. A copy of the magazine should be found in every doctor's reception room, in every high school, community center, club, beauty shop, barber shop and countless other stations. There is room for much improvement. Won't you do your share?

What kind of programs have you planned? Sometimes during membership drives we are told that our programs are not interesting. Why aren't they? There are many suggestions for programs, many films and much literature to be had for the asking. Have your program chairmen contact our state program chairman and with her help, you can have a splendid program at every meeting. Plan one or two meetings to which you can invite your lay friends.

Public relations! Every doctor's wife should be a committee of one! We have a marvelous opportunity to spread the truth and clarify matters for lay people. Our husbands have met the challenge hurled at them and they are fighting honestly and fearlessly for the American way of life. Auxiliary members—be well informed! Do your share!

DRIVE STARTED TO COLLECT SAMPLE DRUGS

**Mrs. Bernard E. O'Reilly, Chairman
Committee on Medical and Surgical Relief**

Sample drugs received in doctors' offices can help fill the need of many institutions whose budgets don't allow purchase of many of these drugs. Auxiliary members are urged to arrange to spend a few hours twice or more a year to collect the sample drugs. Members should ask their husbands to save these drugs for collection. Office girls will be glad to have a box or large paper bag placed in the office for the samples. The orphanages, rest homes, county homes, missionary societies throughout the state will welcome boxes of drugs for distribution. Auxiliary members are asked to start now saving the samples for this worthwhile work. In the next issue of *MINNESOTA MEDICINE* the names of organizations that will accept instruments and drugs for shipment overseas will be listed.

Drugs may be separated into groups, such as vitamins, baby foods, salves, headache medicine, et cetera. Don't let valuable drugs be wasted.

PROMINENT AUXILIARY MEMBER DIES

Mrs. William J. Byrnes died in Minneapolis October 21, 1950. Mrs. Byrnes was the widow of Dr. William J. Byrnes, who died in November, 1929. Dr. Byrnes was of a pioneer family, coming from New York in 1851.

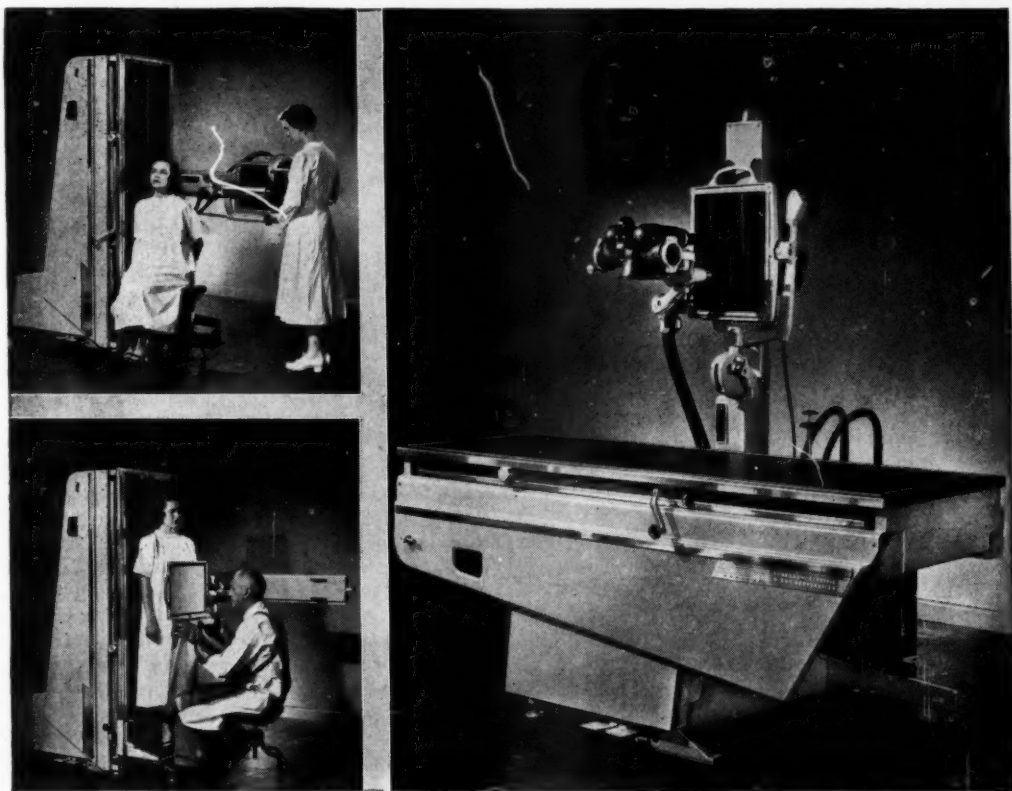
Mrs. Byrnes was the organizing president of Hennepin County Medical Auxiliary in October, 1910. She has held the office of parliamentarian several times for the Woman's Auxiliary to the Minnesota State Medical Association.

She was a life member of the Minnesota Historical Society, a member of the Minneapolis Woman's Club, the Lewis Parliamentary Law Club, the American Legion Auxiliary and the Oak Park Study Club. She is survived by three daughters: Miss Lyle Byrnes, Mrs. Hallan Huffman, and Mrs. Robert Seiberlich.

The experience of two great wars and studies of the mortality figures of tuberculosis in relation to environment have shown that when the standard of living falls tuberculosis rises.—FREDERICK HEAF, *British Medical Journal*, November 5, 1949.

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In Memoriam

JOHN PHINEAS BARBER

Dr. John P. Barber, a Minneapolis physician for more than fifty years, died October 13, 1950, at the age of ninety-three.

Dr. Barber was born near Bardstown, Kentucky, October 27, 1857. He graduated from Cecilian College in 1881 and from the University of Louisville Medical School in 1886. He interned at St. Mary and Elizabeth Hospital in Louisville, after which he moved to Minneapolis.

He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association and the American Medical Association, the Knights of Columbus, the Sons of the American Revolution and the Hibernians.

Surviving are his wife, Alice W., five sons and five daughters.

GUSTAF WILLIAM DAHLQUIST

Dr. G. W. Dahlquist, formerly of Lancaster, Minnesota, died October 25, 1950, at the Minnesota Soldier's Home. He was eighty-six years of age.

Dr. Dahlquist obtained his M.D. degree at the University of Minnesota in 1893 and practiced at Lancaster, Minnesota, from 1907 to 1917 when he enlisted in the Army. After World War I, he returned to Lancaster and several years later went to Fargo, North Dakota, where he was on the medical staff of the Veterans Administration for ten years.

Mrs. Dahlquist passed away last winter. Dr. Dahlquist is survived by six children.

ALEXANDER G. DUMAS

Dr. Alexander G. Dumas, Chief of the Neuropsychiatric Service, Veterans Administration Facility, Minneapolis, Minnesota from 1922 to 1944, died October 2, 1950.

Dr. Dumas was born in Minneapolis, May 11, 1896. He obtained a B.S. degree from St. Thomas College in Saint Paul in 1916, and an M.D. from Creighton University Medical School, Omaha, Nebraska in 1921. After interning at St. Joseph's Hospital in Omaha, Nebraska, he took postgraduate study at the State Hospital for the Insane at Osawatomie, Kansas, for eighteen months. He was a veteran of World War I.

Dr. Dumas was a member of the Hennepin County Medical Society, the Minnesota State Medical Association, the American Medical Association, and the American Psychiatric Association. He was an Associate Professor of Psychiatry and Neurology in the University of Minnesota Medical School. He was one of the founders of the Governor's Advisory Committee on Mental Health and former chairman of that committee.

He was formerly Chief of Staff at Glenwood Hills

and Homewood hospitals in Minneapolis, neuropsychiatric consultant to municipal courts in Hennepin County, medical director of Minnesota Mental Hygiene Society, Inc., and member of former Governor Stassen's crime commission.

Dr. Dumas married Octavia Dyke of Minneapolis in 1921. He is survived by his wife; a daughter, Mrs. Keith Brueckner, Princeton, New Jersey; three sons, James A., Cody, Wyoming, Frederick G., Stamford, Connecticut, and John C., Saint Paul; two grandchildren; his father, George A.; three brothers, Fred, Roy and Delbert, and one sister, Mrs. Kenneth Smith, all of Minneapolis.

Dr. Dumas was an outstanding leader in his field and an honor to his profession. His life was characterized by his devotion to his family and friends from all walks of life. His passing is a real loss to the medical profession and to the community.

I. GRANT DAVIS

Dr. I. Grant Davis, a practitioner at Rushford, Minnesota, until he sold his practice July 1, 1950, died at the home of Mr. and Mrs. Edward Reishus, Rushford, September 29, 1950.

Dr. Davis was born at Arcadia, Wisconsin, October 30, 1887. He obtained a B.S. degree from the University of Wisconsin in 1912 and an M.D. from Rush Medical College in 1914. His internship was served at La Crosse Lutheran Hospital at La Crosse, Wisconsin.

Dr. Davis practiced at Duluth in 1916, at Little Falls in 1917 and 1918, and served as a lieutenant in the Army in 1918 and 1919.

He was a member of the Olmsted-Houston-Fillmore-Dodge County Medical Society, the Minnesota State Medical Association and the American Medical Association. For many years he was health officer at Peterson and Rushford. He was active in the Masonic order, serving as secretary of the local lodge for many years.

Dr. Davis never married.

JOSEPH ELLSWORTH MCCOY

Dr. J. E. McCoy, formerly of Ironton and lately of Thief River Falls, died September 22, 1950.

Dr. McCoy was born at Hillsboro, Ohio, February 4, 1870. He studied at Lebanon College in Ohio before attending Hospital College of Medicine at Louisville, Kentucky, where he graduated in 1897. In 1910 he came to Ironton, Minnesota, where he practiced until he moved to Thief River Falls in 1937.

In 1902 he married Clara Steiner, who died in 1929. Dr. McCoy married Julia Johnson in 1936. He is survived by Mrs. McCoy and two sons, Vernon of Minneapolis and Homer of Los Angeles.

Dr. McCoy was a former member of the Lyon-Lincoln Medical Society, the Minnesota State Medical Association and the American Medical Association.

Municipal Bonds and Inflation

The problem of inflation and its eventual effect upon an investor's savings was discussed in our last article by quoting from an address of Mr. Phillips Barbour, editor of the BOND BUYER, given before the Municipal Forum of the National Security Traders Association. The quotations below are from the same address under the section entitled, "How Municipals Fit Into the Picture."

- (1) They are secure: Municipals are the only form of investment among those mentioned, that the investor can be as sure, as he can be about anything these days, that he will have his principal returned to him in full on a specified date in future.
- (2) Income is dependable: With few exceptions among those mentioned, municipals alone, provide a regular income.
- (3) They are the only income-producing investment in which the investor can know not only the number of dollars he will receive on a certain date, but how many of those dollars he may keep for himself to use as he wishes.
- (4) There is opportunity for growth in market value of municipals, because as inflation grows taxes usually grow, as a result the value of the municipal income grows because it is tax-exempt. Thus, tax exemption tends to compensate for loss of purchasing power.
- (5) Municipals are easy to buy or sell. Banks and brokers everywhere are accustomed to handling such transactions.
- (6) They are an ideal collateral for making quick loans and banks are in no way restricted in making such loans.
- (7) While municipals may not be bought blindly, the problem of picking a satisfactory investment in that category is simpler than in any other I know of, because the fundamental security underlying all municipals is substantially the same.
- (8) Most municipals are paid out of taxes and taxes must be paid before dividends. Thus these securities have a prior claim, as it were, over dividends. When not paid out of taxes they are paid from revenues received for vital services rendered, such as sale of water, on which they have a monopoly."

We have reprints of Mr. Barbour's address available and will be pleased to send you one without obligation, upon request.

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ERNEST S. MARIETTE

Dr. Ernest S. Mariette, who completed thirty-three years of service as superintendent of Glen Lake Sanatorium before his retirement, November 1, 1949, because of ill health, died October 29, 1950. He was sixty-two years of age.

Dr. Mariette was born January 3, 1888, in Blue Earth County. He graduated from the University of Minnesota Medical School in 1913 and interned at the University of Minnesota Hospital. From 1913 to 1916 he was on the staff of Nopeming Sanatorium.

Under his direction, Glen Lake Sanatorium, Hennepin County's hospital for the tuberculous, became nationally recognized as one of the great tuberculosis sanatoria of

the United States. It was the first tuberculosis hospital in the country to receive a Class A rating from the American College of Surgeons.

A member of the board of directors of the National Tuberculosis Association, Dr. Mariette served as president of the Mississippi Conference on Tuberculosis, as president of the Minnesota Trudeau Society and, from 1946 through 1948, as president of the Hennepin County Tuberculosis Association. He was a member of the Hennepin County Medical Society, the Minnesota State Medical Association, the American Medical Association, and the American Hospital Association, and was an assistant professor of medicine at the University of Minnesota Medical School.

IN MEMORIAM



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Many outstanding physicians in tuberculosis work were trained under his direction at Glen Lake Sanatorium. A special contribution of Dr. Mariette was his pioneer use of BCG vaccine in the protection of nurses and in initiating an in-sanatorium program for the rehabilitation of tuberculosis patients.

Dr. Mariette is survived by his wife, Anna; a son Sidney of Hopkins, and a daughter, Grace L. of Maplewood.

FRANK LYNAM

Dr. Frank Lynam, a resident surgeon at the Duluth shipyards during both World Wars, died at his home in Minneapolis, October 8, 1950. He was eighty-four years of age.

Dr. Lynam was a graduate of Bowdoin College and the Harvard Medical School. He was administrator of the American Relief Administration in Russia in 1922. At one time he was a member of the University of Michigan Medical School faculty and was a medical supervisor for the British in the Bahama Islands.

Surviving are his wife, Hazel, and two daughters.

WILLIAM ARNOLD MEIERDING

Dr. W. A. Meierding, who practiced in Springfield, Minnesota from 1911 to 1927 and in Mankato from 1927 to 1931, died October 12, 1950 in Corona, California, at the age of seventy.

Dr. Meierding was born at New Ulm, July 6, 1880. He graduated from the University of Minnesota Medical School in 1907 and interned at the Metropolitan Hospital in New York City and the Fergus Falls State Hospital.

In June, 1912, he married Alma Bendixen. They had two sons, William and Robert. During World War I, Dr. Meierding served as a lieutenant in the Medical Corps.

EDWIN ELMER SHRADER

Dr. E. E. Shrader, formerly of Winsted, Minnesota, died at Watertown, Minnesota, October 21, 1950. He was eighty-eight years of age.

Dr. Shrader obtained his medical degree from the University of Minnesota Medical School in 1893, and that same year began practice in Watertown. In 1928 he retired and moved to California. In 1935 he returned to Winsted, where he practiced until 1950. On January 22, 1950, on the occasion of his retiring from practice and moving to Watertown, he was tendered a farewell party by his many friends.

Dr. Shrader was a life member of the Wright County Medical Society, the Minnesota State Medical Association and the American Medical Association.

In a world in which co-operation on the political level seems at present an unrealizable dream, it is heartening to recall that it has existed for a long time in the field of health. Widespread public health is both an instrument and a condition of any lasting peace.—Dr. F. W. BEHMLER, *Minnesota's Health*, October, 1950.



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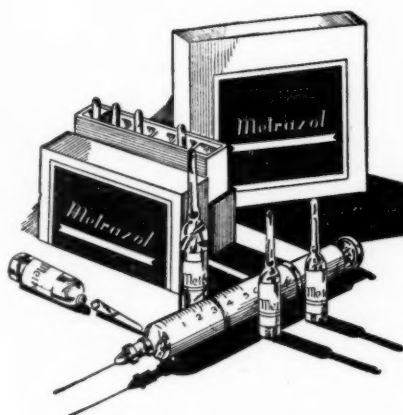
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◆ Of General Interest ◆

Thirteen Minnesota physicians were inducted into the **American College of Surgeons** at a meeting in Boston on October 27. The physicians are Dr. Charles F. Brigham, Jr., St. Cloud; Dr. Tague C. Chisholm, Minneapolis; Dr. Walter K. Haven, Minneapolis; Dr. Richard C. Horns, Minneapolis; Dr. Karl E. Johnson, Duluth; Dr. Malcolm R. Johnson, Minneapolis; Dr. Donald R. Lannin, Saint Paul; Dr. Donald P. McCormick, Minneapolis; Dr. Raymond K. Minge, Worthington; Dr. Siegfried G. G. Oeljan, Waseca; Dr. John H. Rosenow, Minneapolis; Dr. Melvin Schlemenson, Saint Paul; Dr. Donald E. Stewart, Crookston.

* * *

Dr. A. L. Arends, formerly on the staff of the state hospital at Moose Lake, has opened offices for the practice of medicine in Cokato.

* * *

On November 16, **Dr. C. R. Stanley** of Worthington attended a meeting of the Eye, Ear, Nose and Throat Society of Omaha and Council Bluffs. The meeting was held in Omaha.

* * *

The thirtieth anniversary of the founding of the **Northwestern Clinic** in Crookston was observed on November 11 at the annual dinner for the staff and employees. Fifty-two persons attended, in contrast to the first dinner at which the attendance was five. The clinic was founded thirty years ago by Dr. M. O. Oppegaard, Dr. C. L. Oppegaard and the late Dr. O. E. Locken.

* * *

Dr. Paul F. Brabec, formerly of Forsyth, Montana, has opened offices for the practice of medicine in Detroit Lakes.

* * *

Dr. J. Arthur Myers, professor of medicine, preventive medicine, and public health at the University of Minnesota, was awarded the Hoyt E. Dearholt Medal given annually by the Mississippi Valley Conference on Tuberculosis for outstanding contributions to tuberculosis control. Presentation was made to Dr. Myers at the annual Christmas Seal Dinner of the Minnesota Public Health Association on October 25.

* * *

Dr. Charles W. Fogarty, Jr., of Saint Paul, addressed the Stearns-Benton County Medical Society at St. Cloud on November 16. His subject was "The Use of Cortisone and ACTH in the Treatment of Arthritis."

* * *

The **CARE-UNESCO Book Fund** celebrated its first anniversary on September 26 by announcing it had received nearly a million dollars in contributions and pledges to provide new books and scientific equipment for educational institutions overseas.

The report showed that 378 educational institutions in twenty-four countries have benefited by deliveries of text and reference works purchased with contributions of various amounts sent to the Book Fund at CARE headquarters, 20 Broad Street, New York City, and local CARE offices throughout the United States, Canada and South America.

Poland and Czechoslovakia closed all CARE service during the year, and deliveries to Korea have had to be suspended because of the military situation. When conditions permit, the Korean operation will be resumed.

Contributions in any amount are accepted by the Book Fund. Sums under \$10 are pooled in the general fund. Donors of \$10 or more may designate the institution, country and category of book; CARE returns to them a receipt signed by the recipient and, on request their name is inscribed on the special CARE-UNESCO book plate in each volume. CARE's purchases are based on extensive book lists compiled by a committee of U. S. librarians and scientists headed by Dr. Luther Evans, U. S. Librarian of Congress.

* * *

Dr. Richard Utne of Northfield reported for service at San Antonio, Texas, on November 1.

* * *

Dr. Stewart W. Shimonek, Saint Paul, announces the association of Dr. Mentor H. Christensen in the practice of orthopedic surgery at 942 Lowry Medical Arts Building. Dr. Shimonek has returned temporarily to duty with the United States Navy.

* * *

Dr. Francis J. Savage and Mrs. Mary Watson Blodgett were married on November 1, and are at home at 719 Linwood Avenue, Saint Paul.

* * *

Christmas Seals—Again the Minnesota Public Health Association is conducting its yearly sale of Christmas Seals to assist in the fight against tuberculosis. While each year shows a drop in the tuberculosis death rate in the state, tuberculosis continues to be first as a cause of death in the age group of fifteen to thirty-five.

The funds collected through the sale of seals finance educational programs, make possible tuberculosis testing surveys in our schools and assist in paying for county-wide mass x-ray surveys.

It is imperative that the Christmas Seal Sale be supported each year until tuberculosis is eradicated from the human race.

* * *

Mrs. Donald S. Branham, the wife of Dr. Donald S. Branham, staff member of the St. Peter State Hospital, died in Mankato on October 31.

(Continued on Page 1266)



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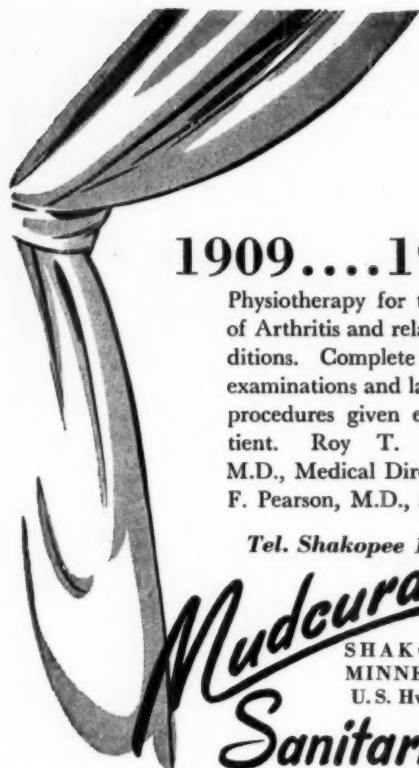
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(Continued from Page 1264)

Three Minnesota physicians were on the program as Mankato held its special community **Health Day** on October 11. Dr. Ralph Rossen, commissioner of mental health in Minnesota, discussed the state's mental health program. Dr. William S. Chalgren, Mankato, conducted a panel discussion on "The Emotional Development of the Child." Dr. Roger W. Howell, associate professor of neuropsychiatry at the University of Minnesota, spoke on "Parents' Reaction to Their Children."

* * *

Dr. Arthur H. Wells, Duluth, was re-elected president of the Minnesota Division, American Cancer Society, at its annual meeting in Saint Paul early in November. He will be serving his third one-year term in the office.

* * *

It was announced early in October that **Dr. Keith D. Larson** had opened offices for the practice of medicine in White Bear. A graduate of Northwestern University Medical School, Dr. Larson served his internship at Presbyterian Hospital in Chicago. He completed residencies in pathology and heart diseases at Cook County Hospital, Chicago, and then spent nearly five years at the Mayo Clinic.

* * *

Dr. and Mrs. R. V. Williams, Rushford, returned in October from a three-month tour of Europe. Although most of the trip was spent in Norway, they also visited eight other countries.

* * *

Dr. Clyde A. Undine, Minneapolis, attended the Midwest regional meeting of the American College of Physicians at Madison, Wisconsin, on November 18.

* * *

Robert Joyer, M.D., assistant medical director of the **Saint Paul Red Cross Regional Blood Center**, has resigned, effective December 1, to accept the medical directorship of the Omaha Regional Blood Center, according to an announcement by Dr. E. V. Goltz, Saint Paul director.

The resignation leaves a vacancy at the center and creates an opportunity for a young physician who wishes to make a life work in hematology and public health. Dr. Goltz pointed out that the program is still in its infancy and that there are unlimited opportunities in the field.

Thirty-five Red Cross blood centers are now in existence and the schedule calls for the establishment of fifteen additional centers within a five-year period.

* * *

At the annual meeting of the Governors and Fellows of the **American College of Surgeons** held in Boston, October 26, Dr. Alton Ochsner, New Orleans, was elected president; Dr. Thomas H. Lanman, Boston, first vice president, and Dr. Joel W. Baker, Seattle, second vice president. These officers

(Continued on Page 1268)



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GYNECOLOGY—Intensive Course, two weeks, starting February 19. Vaginal Approach to Pelvic Surgery, one week, starting March 5.

OBSTETRICS—Intensive Course, two weeks, starting March 5.

MEDICINE—Intensive General Course, two weeks, starting April 23.

Gastro-enterology, two weeks, starting May 14. Gastroscopy, two weeks, starting March 5. Electrocardiography and Heart Disease, two weeks, starting March 19.

PEDIATRICS—Intensive Course, two weeks, starting April 2.

Informal Clinical Course every two weeks.

UROLOGY—Intensive Course, two weeks, starting April 16.

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(Continued from Page 1266)

will be installed at the 1951 Clinical Congress to be held in San Francisco. Dr. Owen H. Wangensteen, Minneapolis, was elected to fill the unexpired term of Dr. Dallas B. Phemister, resigned, on the Board of Regents.

* * *

Under the teaching grant program, inaugurated two years ago, the **Public Health Service's** National Heart Institute has awarded to date \$1,463,814 to forty-nine medical schools in twenty-nine states and the District of Columbia to provide better teaching equipment and wider instruction in heart disease.

Twenty-one new grants plus renewal of forty-four earlier grants, making a total of \$855,740, have been approved for mental health research upon recommendation of the National Advisory Mental Health Council of the National Institute of Mental Health, Public Health Service, according to a recent announcement of Oscar R. Ewing. One of the research problems is the attempt to identify the different personality structure of the pre-diabetic. The May Institute for Medical Research, Cincinnati, Ohio, will make a three-year study of the mental, emotional and physical make-up of a selected group of pre-diabetic individuals before these people actually become ill. How this will be accomplished before diabetes develops is not made clear, but doubtless, tax dollars will solve the problem.

One hundred sixty-six grants, totaling \$1,915,-

708 were awarded through the Public Health Service's National Institute of Mental Health to help the expansion of teaching programs in medical schools, universities and other training centers. In addition, an allocation of \$1,179,003 will make possible the award of about 560 stipends to graduate students of psychiatry, clinical psychology, psychiatric social work and psychiatric nursing. For these purposes \$158,248 goes to the University of Minnesota.

* * *

Dr. E. C. Kendall, director of the Mayo Clinic biochemistry laboratory at Rochester, received the medal of honor of the Canadian Pharmaceutical Manufacturers Association at Ottawa on October 31 for his work in isolating cortisone and ACTH.

* * *

Dr. Gordon R. Kamman, Saint Paul, presented the closing lecture at the Regional Postgraduate Seminar in Gynecology held at Worthington. His subject was "Psychosomatic Problems in Gynecologic Practice."

* * *

One of the series of articles entitled "How America Lives," which have been appearing in the Ladies Home Journal, is a description of a country doctor in the November issue. The editors of the publication chose Dr. Charles Sheppard of Hutchinson from among several practitioners as being typical of a small-town American doctor. Although hesitant



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at first about lending his name to this type of publicity, when he was assured that he would be beyond criticism on the part of his confreres, Dr. Sheppard agreed to co-operate with the magazine's representative. The result is an interesting article about a small-town doctor and his family.

* * *

Dr. William B. Stromme, Minneapolis, spent a week at the Cornell Medical Center, New York, from November 11 to 18. He lectured at Cornell on the subject, "Management of Abortion."

* * *

Dr. A. J. Chesley, executive officer of the Minnesota Department of Health, was given one of the four Arthur Thomas McCormick awards for meritorious service in public health at the annual conference of the Association of State and Territorial Health Officers in Washington, D. C., on October 27.

* * *

Dr. Gaylord W. Anderson, director of the School of Public Health at the University of Minnesota, was named president-elect of the American Public Health Association at its annual meeting in St. Louis, October 30 to November 3.

* * *

Dr. Betty St. Cyr Gilson, formerly of Robbinsdale, has been named "Woman of the Year" by the Great Falls, Montana, Business and Professional Women's Club. Dr. Gilson received her award for

her work at the Western Foundation for Clinical Research and as director of the Cascade County rheumatic fever pilot program. A graduate of the University of Minnesota, Dr. Gilson studied for five years at the Western Reserve University Hospital. She is married to Dr. John Gilson and is the mother of two children.

* * *

Dr. Don E. Nolan, a native of Beardsley and a graduate of the University of Minnesota Medical School, has been named manager of a 325-bed Veterans Administration hospital being built at Seattle, Washington.

* * *

It was announced on November 16 that **Dr. Daniel K. Halvorsen**, formerly of Minneapolis, had become associated in practice with Dr. Ernest J. Nelson in Owatonna. A graduate of Yale University Medical School, Dr. Halvorsen served his internship at the University of Minnesota Hospitals. During the past year Dr. Halvorsen was a fellow in surgery at the University of Minnesota and served as a resident surgeon at Northwestern Hospital, Minneapolis.

* * *

Dr. Walter M. Boothby, professor emeritus of the Mayo Foundation, has joined the staff of the School of Aviation Medicine, Randolph Field, Texas, as research advisor. While with the Mayo Foundation, Dr. Boothby was chief of the section on metabolic research and he organized the aero-medical



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unit for research in aviation medicine. For the past two years he has been advisor on research in aviation medicine and physiology to the Swedish Aviation Medicine Council at the University of Lund, Sweden.

* * *

Dr. Peter C. Peterson, formerly of Mora, has moved into the offices of the late Dr. E. L. Baker at 1517 Como Avenue S. E., Minneapolis. Dr. Petersen has been in practice since 1934, practicing medicine at Braham, Mora, and Northwestern Hospital, Minneapolis.

* * *

After practicing at Bird Island since 1946, **Dr. Walter E. Hinz** has moved to Willmar and opened offices for the practice of medicine there. A graduate of the Northwestern University Medical School, Dr. Hinz served in the Army for three years during World War II.

* * *

The second annual David L. Tilderquist memorial lecture was presented before the St. Louis County Medical Society on November 9 by **Dr. Heinrich G. Kobrak**, associate professor of otolaryngology at the University of Chicago. The lecture, which was entitled "Going Behind the Iron Curtain of the Ear," included motion pictures showing the bones of the ear in actual vibration. The pictures, taken with high-speed photographic and stroboscopic equipment, slow the vibrations to one per second and show for the first time the actual function of the ear.

* * *

A grant by the government of \$15,058 to the University of Minnesota for cancer research was announced on November 13. The grant is for a project directed by **Dr. George E. Moore**, clinical instructor in surgery at the University.

* * *

Five Minnesota physicians were certified as fellows of the **International College of Surgeons** at the annual assembly of the United States Chapter in Cleveland early in November. They are Dr. Herbert H. Busher and Dr. Wallace L. Fritz, both of Saint Paul; Dr. Collin S. McCarty, Rochester; Dr. W. C. Stillwell, Mankato, and Dr. Leonard A. Titrud, Minneapolis.

* * *

Dr. B. J. Cronwell, Austin, attended the Utah regional meeting of the American College of Physicians at Salt Lake City early in November.

* * *

Dr. A. Mason Randall, Ashby, was paid tribute by residents of the Ashby area at a special meeting held in his honor on November 13. The program was planned in recognition of Dr. Randall's forty-one years of service to the people of Ashby and vicinity.

* * *

Dr. C. H. Holmstrom, Warren, was elected president of the board of education of the new Warren Consolidated Independent District No. 2J at the organizational meeting of the board in Warren late in September. Dr. Holmstrom has served as president of the Warren district for several years.

MINNESOTA MEDICINE

Dr. Charles W. Mayo, Rochester, was one of the speakers at the dedication on November 5 of the Lovelace Foundation's million-dollar medical building in Albuquerque, New Mexico. Dr. W. Randolph Lovelace II, a former member of the Mayo Clinic staff, is now a member of the board of trustees of the foundation.

* * *

Dr. Albert D. Corniea, Minneapolis, was guest of honor at a dinner meeting of Maternity Hospital medical staff and board members in Minneapolis on October 30. Dr. Corniea has been a staff member of Maternity Hospital for twenty-five years.

* * *

At a showing of the motion picture "Breast Self-examination" in Crookston on November 6, **Dr. C. G. Uhley** of Crookston acted as commentator for the picture and conducted a question-and-answer session following the picture. The showing of the film was sponsored by the local American Legion post and auxiliary and the First District of the Minnesota Nurses Association.

* * *

Dr. Henry W. Meyerdin, Rochester, took office as president of the United States Chapter of the International College of Surgeons at the group's assembly in Cleveland, Ohio, on November 3.

* * *

It was announced on October 27 that **Dr. Bernard Nauth** of Bemidji would practice in Gonvick

three afternoons each week, to substitute partly for Dr. Norman F. Stone, who has gone back into military service.

* * *

The American College of Physicians held a post-graduate course in peripheral vascular diseases in Rochester, November 27 through December 2. **Dr. Walter F. Kvale**, of the Mayo Clinic staff, was director of the course.

* * *

Dr. Donald C. Anderson, formerly of Olivia, has purchased the practice of Dr. W. E. Hinz in Bird Island and has begun practice there. Dr. Hinz is now practicing in Willmar.

* * *

Principal speaker at the dedication dinner for the new student health service building at the University of Minnesota was **Dr. William P. Shepard**, president of the American Public Health Association. At the dinner, held in the University's Coffman Memorial Union, on November 6, Dr. Shepard spoke on "Student Health and Public Health."

* * *

The counseling clinic of the Rochester-Olmsted County Public Health Department acquired its first full-time director during the first week of October when **Dr. George Williams** accepted appointment to the office. Dr. Williams was formerly on the staff of the Minneapolis Veterans Hospital. A graduate of St. Louis University, he interned at the St. Mary's group of hospitals in St. Louis.



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Approximately 250 friends and relatives attended an open house celebration of the golden wedding of **Dr. and Mrs. J. A. Thabes, Sr.**, Brainerd, last month.

Dr. Thabes and his wife are widely known in the Brainerd area for their long and selfless service in community affairs. Dr. Thabes came to Brainerd in 1882 and has practiced medicine in that city for fifty-three years. Dr. Thabes was honored by the Minnesota State Medical association for completing fifty years of service in medicine by being elected to membership in its "Fifty Club" three years ago.

Recently Dr. Thabes was honored by the Elks and Masons for having been an active member of each organization for fifty years. He is a charter member of each. He has just completed serving as chairman of the Crow Wing-Aitkin Sanatorium commission, a position he has held for the past thirty-two years. He has been a member of the Upper Mississippi Medical society for 30 years, since its organization; was president of the State Board of Health for eleven years and has been a member of the American College of Surgeons for thirty years.

Mrs. Thabes has also led an extremely active life, having taught school a number of years, and working along education and health lines. She has served as president of the State Medical auxiliary for many years, and headed the Red Cross in Crow Wing county for thirty years. She has also been a member of the executive committee of the Minnesota Public Health association for twenty-five years, and has the distinction of being

the only woman president of that organization, serving as such in 1947 and 1948. She was Republican state chairwoman in 1932-1933.

Dr. Thabes and his wife, among Brainerd's leading citizens, have served the community not only as a doctor and his wife, but have been two of its most public-spirited residents, giving much of their time to working with and for the people of the locality.

HOSPITAL NEWS

Dedication of the new **Ely-Winton Memorial Hospital** took place on November 12. Principal speaker at the dedication of the thirty-five bed hospital was Dr. Vernon D. E. Smith of Saint Paul.

* * *

Dedication services for the new 141-bed addition to **St. Luke's Hospital**, Duluth, were held on November 17. A box filled with articles and information about the hospital, to be "of interest 200 years hence," was sealed in the cornerstone of the addition.

* * *

At a meeting of the commission for the Aitkin-Crow Wing County sanatorium late in October, a resolution was adopted recommending that the **Deerwood Sanatorium** be closed. It was pointed out that modern surgical procedures cannot be carried out in small sanatoriums, and that due to the limited number of patients the cost of running a small institution is proportionately too high. It was stated

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that if the patients at Deerwood Sanatorium had been transferred to a large institution, there would have been a saving to the counties of \$13,000 last year.

* * *

A new half-million-dollar building at the **Rochester State Hospital** was dedicated on November 2. The structure, which is part of a twenty-two-million-dollar group of buildings being constructed under the new mental health program, will house 150 aged women patients with mental illness. Principal speaker at the dedication ceremonies was Governor Luther Youngdahl. Dr. Magnus C. Petersen is superintendent of the hospital.

* * *

The **Valleyview Hospital**, near Shakopee, opened its doors to patients on November 16. The five buildings comprising the institution have been completely remodeled during the past two years under the supervision of Dr. J. C. Michael, Minneapolis, medical director of the hospital. Forty-four beds were available at the time of opening, but when the main structure is completed, the capacity will be 102 beds. The hospital will care for long-term chronic and convalescent patients.

BLUE CROSS-BLUE SHIELD NEWS

More than 100,000 claims have been adjudicated by Minnesota Medical Service, Inc. This represents something of a milestone in the progress of Blue Shield and bears evidence of our increasing usefulness and value to the contract holder.

Minnesota Blue Shield payments for September, 1950, totaled \$231,979.03, providing allowances on 6065 cases covering 27,535 days of hospital care. Of these cases 4576 were for services rendered hospitalized patients; 1465 for office cases and twenty-four for services rendered in the patient's home. Of the total payment for the month, \$210,590.91 was for hospitalized cases, \$21,069.12 for office cases and \$319.00 for home cases. Major surgical procedures totaled 818 representing 7004 days in the amount of \$85,282.82; minor procedures totaled 5247, representing 20,531 days' care with payment of \$146,696.21.

Payments to participating doctors totaled \$220,169.27, representing 3517 surgical cases in the amount of \$143,227.67; 1583 medical cases in the amount of \$38,517.60, and 720 obstetrical cases in the amount of \$38,424.00. Nonparticipating doctors in the state received payment for fifty-eight surgical cases in the amount of \$4,347.64; thirty-eight medical cases totaling \$960.50 and five obstetrical cases in the amount of \$318.00. Out-of-state doctors received payments totaling \$6,183.62 covering 144 cases.

Blue Shield enrollment increased during the month to 378,105 participant subscribers; 2001 new Blue Shield contracts became effective. Blue Cross enrollment as of September 30, 1950, totaled 1,027,701.

In order that insofar as possible all 1950 business can be cleared during January, 1951, it is requested that each of you submit claims on any unreported Blue Shield cases. In addition if there are any claims which have

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CE. 5767

been reported prior to October 1, 1950, on which no Blue Shield action has been taken, it is suggested that these cases again be reported, bearing the notation "duplicate."

To enable the Blue Shield office to continue its effective operation, you, the doctor of medicine in Minnesota, can immeasurably assist us by bearing in mind the importance of submitting complete and accurate reports at the earliest opportunity, giving all pertinent information as to the patient, and also the type of service rendered.

In the adjudication and adjustment of Blue Shield claims, Minnesota Medical Service, Inc., is pleased to announce that Dr. Edwin J. Simons, formerly of Swanville, Minnesota, as of November 1, 1950, assumed the position of medical director.

BOOK REVIEW

BOOK REVIEW

Books listed here become the property of the Ramsey, Hennepin and St. Louis County Medical Libraries when reviewed. Members, however, are urged to write reviews of any or every recent book which may be of interest to physicians.

THE MANAGEMENT OF OBSTETRIC DIFFICULTIES. By Paul Titus, M.D., Obstetrician and Gynecologist to the St. Margaret Memorial Hospital, Pittsburgh; Consulting Obstetrician and Gynecologist to the Shadyside Hospital, Pittsburgh; Secretary of the American Board of Obstetrics and Gynecology; Member Reserve Consultants Advisory Board, Bureau of Medicine and Surgery, United States Navy (Captain, MC, USNR). 4th ed. 1046 pages. Illus. Price \$14.00. St. Louis: The C. V. Mosby Company, 1950.

The purpose of this edition, as has been the purpose of the other editions that Titus has written on management of obstetric difficulties, is to provide information that can be made quickly available to aid one's judgment in the proper management of obstetrical problems and emergencies. It is therefore, very useful to the general practitioner as well as the obstetric specialist. Fundamentals and theories have been eliminated to make the material more concise. Emphasis has been placed on diagnosis and treatment. The book covers by sections, the topics on sterility, difficulties in diagnosis of pregnancy, complications of pregnancy, complications of labor, obstetric operation, complications of the puerperium, the newborn infant, special supportive measures.

Many advancements have been made since the third edition was published in 1945. These perhaps can be best

summarized in the word of Paul Titus himself in his preface to the fourth edition:

"New developments in sterility studies and treatment, the current management of threatened and habitual abortions, the changes in management of placenta previa, present views on toxemia of pregnancy, the prevention and management of hemorrhage and shock, are some of the additions in revision. Changes in technique including, induction of labor, preparation for delivery, perineorrhaphy, the management of third stage labor and of retained placenta are described. The chapter on general diseases complicating pregnancy has been added to and revised. The chapter on pelvic mensuration and evaluation by x-ray has been extensively revised and rewritten. New methods of analgesia and anesthesia are discussed."

In an attempt to maintain uniformity of terms before this book was written, a conference was held between Greenhill, Eastman and M. McCormick. Uniform terms were decided upon by these men, and Titus has carried out the use in this edition.

The book is a "must" on the new book list for general practitioners in the country where immediate consultation is not available. It should also be of considerable comfort and interest to the resident staff members to help them in their obstetric problems as they arise. To the specialist it is an important reference book for the unusual complications that arise during pregnancy and labor. The book is well indexed to make the material readily available and also has many references for further study.

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MINNESOTA STATE BOARD OF MEDICAL EXAMINERS

(Continued from Page 1236)

Gold has three convictions in the District Court of Hennepin County, Minnesota, for practicing healing without a basic science certificate. He was first convicted May 21, 1946, and placed on probation for one year. In 1948, he was arrested a second time and was sentenced on March 8, that year, to serve one year in the Minneapolis Workhouse. Gold served the entire sentence less time off for good behavior. Gold was convicted a third time in January, 1950. According to Gold's statement, he was born in New York City and worked in a hospital there as an orderly. When he first came to Minneapolis he was, likewise, employed in a hospital in the capacity of an orderly.

Minneapolis Woman Sentenced to Three-year Prison Term for Fraud in Obtaining Narcotic Drugs

Re: *United States of America vs. Helen Geneva Rudd.*

On November 7, 1950, Mrs. Helen Geneva Rudd, aged fifty-two, 4426 42nd Avenue South, Minneapolis, was sentenced by the Hon. Matthew M. Joyce, Judge of the United States District Court at Minneapolis to three years in a Federal penal type institution. Mrs. Rudd will serve her sentence at the Federal Women's Reformatory at Alderson, West Virginia.

Mrs. Rudd was arrested by Federal narcotic agents on October 17, 1950, following an investigation which disclosed that she had given a false name to a Hennepin County physician in obtaining dilaudid. Mrs. Rudd has a long record of drug addiction. On September 27, 1934, she was given a suspended sentence in the United States District Court at Minneapolis, of eighteen months in a Federal penal institution for violating the Harrison narcotic law. Mrs. Rudd violated her probation and on May 1, 1936, was ordered committed to serve her sentence. Following her release, she was again arrested in July, 1938, for a similar offense, but was acquitted by a jury. In January, 1943, Mrs. Rudd was again arrested for violating the Harrison narcotic act, and on March 2, 1943, entered a plea of guilty at Minneapolis. The charge involved the forging of medical prescriptions. Mrs. Rudd was placed on probation on condition that she take treatment at the Government Hospital at Lexington, Kentucky. She entered the Hospital and was released on March 24, 1945. One week later she was arrested for again attempting to obtain narcotic drugs. Her previous probation was revoked and she was ordered committed to serve her sentence.

In the present case, Mrs. Rudd persuaded a physician to issue fourteen prescriptions for dilaudid and one for codeine in a period of less than one month. The physician who prescribed the narcotic drugs has been ordered to appear before the Minnesota State Board of Medical Examiners at its next regular meeting.

MINNESOTA ACADEMY OF MEDICINE

(Continued from Page 1249)

4. Cases have been mentioned in which variable results are obtained, depending on the stage of the disease or where surgery is still in the experimental stage.

5. Along with this discussion we have presented cases with which we have had personal experience.

Dr. Francis W. Lynch, of Saint Paul, read a paper on "The Quantitative VDRL Test for Syphilis."

The meeting was adjourned.

WALLACE P. RITCHIE, M.D., Secretary

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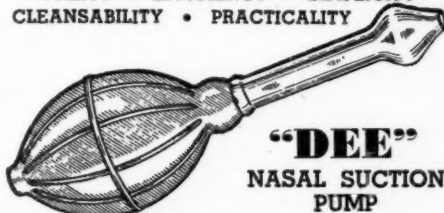
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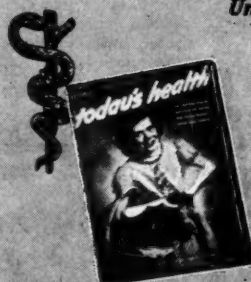
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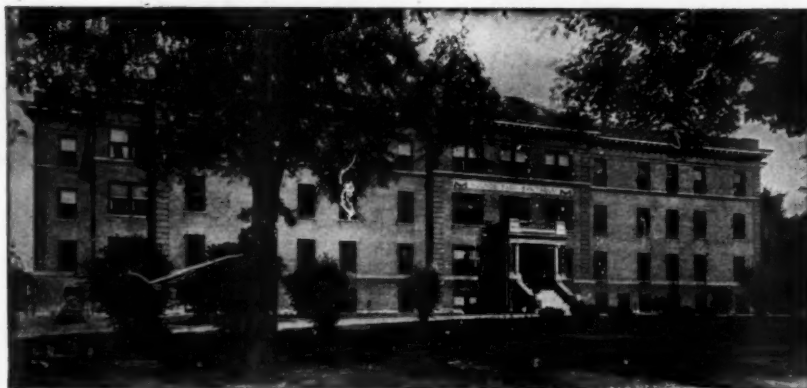
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